TANDY LAPTOP COMPUTING FEBRUARY 1992 -VOL. 9, NO. 2

TERRY KEPNER'S

portable 100

$3.95/CAN $4.95
A MONTHLY PUBLICATION (EXCEPT COMBINED JULY/AUGUST ISSUE)

The 5thWave by Rich Tennant, exerpted from *Dos For Dummies.*

74724 02
0 186036 8

Changes your Model 100 into a totally different computer with capability you never thought possible.

Lucid™ on Snap-In™ ROM

Another fine product from the innovative people at PCSG!

Infoworld rated Lucid's performance "excellent"

NOW AVAILABLE ON M-200

TMNE says "Satisfaction Guaranteed or your money back within 30 days!"

LUCID© is here now. It is on a ROM cartridge that snaps into the compartment on the back of your Model 100. It takes no memory to load and no memory for operating overhead. That means you have the full 29.6k bytes free to store your data.

First, LUCID© is memory conserving. It will let you build a large spreadsheet – 255 row by 126 column capacity. You build huge spreadsheets in your Model 100's RAM that could consume 80 to 100K on a desktop computer.

Secondly, LUCID© is fast. LUCID© is so rapid, a 36 column corporate financial statement took less than 4 seconds to calculate.

Thirdly, LUCID© has features you won't find in most other spreadsheets. For example, when you type a label (text) it will cross column boundaries; in other words when you type a label or title it will appear as you type it irrespective of column or width. LUCID© also allows you to set column widths individually, and of course LUCID© has insert row and insert columns, as well as other standard features. LUCID© even lets your formulas refer to cells in other spreadsheet files.

Further, LUCID© has what no other spreadsheet has: Cut, Copy, and Paste. It uses the same keys as Cut and Paste in TEXT, but here's the difference: it takes all the formulas with it when you paste and they all automatically recalculate with the entire sheet.

And here is what is really amazing. You can copy or cut from one spreadsheet and paste into another spreadsheet or even a TEXT file.

LUCID©supports all BASIC math functions as well as Log, sine, cosine, tangent, exponentiation and other sophisticated math functions.

LUCID© has so many features that you will say "this is what I need in a spreadsheet", such as automatic prompting of an incorrectly typed-in formula showing just where the mistake was made.

LUCID© has expanded "go to" functions that remember and produce a windowing capability.

But perhaps most remarkable is that LUCID© is not only a spreadsheet but a program generator as well. First, LUCID© lets you protect all cells against entry or change, and then unprotect just the cells you want for someone else to use as input fields.

LUCID© will not only process values, but text input as well so that the facts other than numbers can be responded to. LUCID© has the ability for you to refer in a formula to cells containing words. This feature combines with the capacity of doing "if then" statements that work by doing table lookups against even massive X/Y charts of text or numerical information. You can produce a program that responds to inputs with no programming knowledge whatsoever.

You can prepare a report section in your spreadsheet with instructions to your user for printout, and they can produce a personalized printout that responds to their input. All your formulas and tables that did the calculations and provided the facts are invisible to that user. LUCID© is useful for doctors for patient questionnaires, troubleshooting technicians, purchase clerks, people doing job quotes, stores for customer workups, insurance agents and anybody who needs to process specific facts and numbers to produce a report based on those responses.

LUCID© comes with a manual that explains not only the characteristics of LUCID©, but will train you how to use a spreadsheet even if you have never seen one before. You are shown how to do budgets, forecasts, breakeven analysis amortizations and many other types of personal and business reports and calculations.

User friendly is such an over-used term in this industry, but a typical comment has been "I have never seen a spreadsheet that does so much, and yet LUCID© is so much easier and faster to use."

LUCID© is a result of a most exhaustive developmental effort in which PCSG's objective was to develop a spreadsheet that was better than the state-of-the-art. We are so pleased because LUCID© provides for the Model 100 spreadsheet capability you cannot equal on a desktop computer.

LUCID© is, in our opinion and that of those who have examined it, a breakthrough. We sell it on a 30 day trial. If you are not completely satisfied, return it within 30 days for a full refund. Priced at $99.95 on snap-in ROM. Please add $5.00 for shipping and handling. Mastercard, Visa, American Express or C.O.D.

©PCSG 1984,1991

Distributed by:

Tri-Mike Network East

1-603-924-8663

P.O. Box 372,
Peterborough, NH 03458

Circle 74 on reader service card.

More Than Just a Laptop User Group

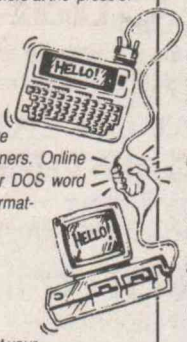
Supporting Tandy/Radio Shack Model 100, 102, 200 and WP-2 Computer Owners Since 1983

Club 100 — Pleasant Hill, California — Tandy Laptop User Group

Lapdos II

Turn your Model 100/102/200/NEC8201 into a PC-partner. Connect your laptop computer or Tandy Portable Disk Drive directly to MS-DOS computers for file transfers at 19200 baud. Fast! Easy to use. Single or batch file transfers at the press of a button. Feature rich!

WP2DOS Plus



Turn your WP2 into a PC-partner. The only "file transfer" and "file conversion" software available or WP2 to DOS computer owners. Online utilities convert WP2 .DO files to popular DOS word processing file formats ... maintains file formatting codes. Super easy and fast.

WPduet

Turn your WP2 into a Mac-partner. Connect your laptop computer or Tandy Portable Disk Drive directly to Macintosh computers for file transfers at 19200 baud. Fast! Easy to use. Single or batch file transfers at the press of a button. Automatic file translations allow your Mac programs to use your laptop files, directly! Maintains file formatting codes.

100duet

Turn your Model 100/102 into a Mac-partner. Connect your laptop computer or Tandy Portable Disk Drive directly to Macintosh computer for file transfers at 19200 baud. Fast! Easy to use. Single or batch file transfers at the press of a button. Automatic file translations allow your Mac programs to use your laptop files, directly!

Power Pillow

Good-looking, powerful, long-lasting battery pack encased within an attractive black-vinyl holder provides hundreds of hours of battery life. Attaches to the back/bottom of your laptop with velcro (included). Hand crafted and tested. (Requires 4, "D" cell batteries, not included).

The Ultimate ROM II

Four programs in one make this more than just a "super" ROM. ***T-WORD:*** *overwrite/insert mode while editing, imbed print controls, control print output (margins, line spacing, page feeds, headers, footers, auto page numbering, bold face, underline, italics, mail merge, labels, and more), pixel-plot view of document before printing.* ***T-BASE:*** *true relational base operations, key field sorts, math, report generation, etc.* ***IDEA!:*** *outliner program for concept development.* ***VIEW 80:*** *see up to 60 characters per line while in TEXT, TELCOM and BASIC, fast processing, easy to read.* ***TS-DOS & SARDINE LINK:*** *automatically loads and runs TS-DOS and SARDINE from disk. (TS-DOS and SARDINE sold separately).*

TS-DOS (ROM or Disk)

Super fast, easy access to your TPDD or TPDD2. Available for Models 100/102/200 and NEC8201. Features: file tagging, file printing direct from disk or RAM, direct access to disk drive from within BASIC or TEXT. Disk version works with the Ultimate ROM II or independently.

SARDINE (ROM or Disk)

Spell check your words. Fast, 33,000 word electronic spell check and dictionary. Corrections automatically inserted into text. ROM version includes T-word. Disk version works with the Ultimate ROM II or independently.

ROM2/Cleuseau

The very best programming tools available for Model 100/102/200 and NEC8201 laptop programmers. Two ROMs in one, and more. ROM2 is a full functioned 8085 macro assembler. Cleuseau adds much needed features to BASIC and TEXT. Call for full details.

Hard Cover

Protect the top of your 100/102/NEC8201 with a made-to-fit hard, black plastic cover. Looks good. Works great. WP2 protection cover available, too.

Keyboard Bands

Just the right size dental rubber bands necessary to almost eliminate Model 100/102/200 keyboard noise. Great for library and meeting use. Easy to install. Instructions included.

RAM, RAMPAC Storage, Multi-RAM/ROM

We have the widest selection of expansion RAM's, RAMPAC storage, and a device that can be used as extra RAM or as a multi-ROM bank. Exciting solutions!

Free BBS

Our free-2-use bulletin board computer is available 24 hours a day. Features: free public conference, free classified advertising, free laptop reference material, free newsletter, free downloads, product ordering, assistance, and more. Log on with any computer. Simple menus fit all 40 character, 8 line displays. Fast, interrupt drive, easy to use for beginners. Friendly. No online cost. Unlimited online time. PC Pursuitable! Optional online library access $1 a month.

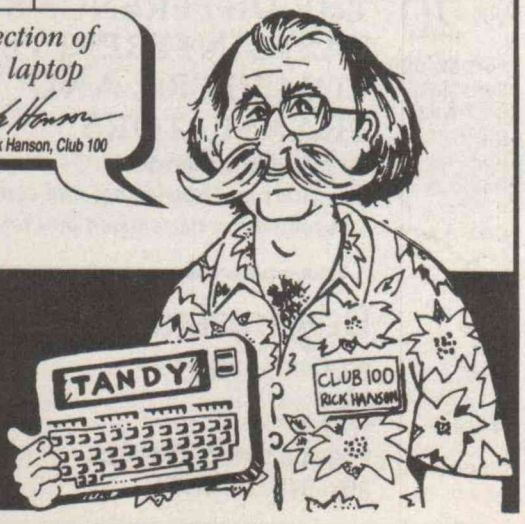
Program Collections

We have the largest "quality" collection of public domain, shareware and author-specific programs available for Model 100/102/200 users, i.e., text, print, telcom, business, graphics, drives, utilities, games, music, programming, education. Available online or mail order on disk. Listings available.

"Look to Club 100 for the largest selection of performance products to make you a laptop power user. Call today!"

Rick Hanson

Rick Hanson, Club 100



We're Always Adding Nifty New Stuff!
Call Today For Our FREE 1992 Catalog

(510)932-8856 voice • **937-5039** fax • **939-1246** bbs

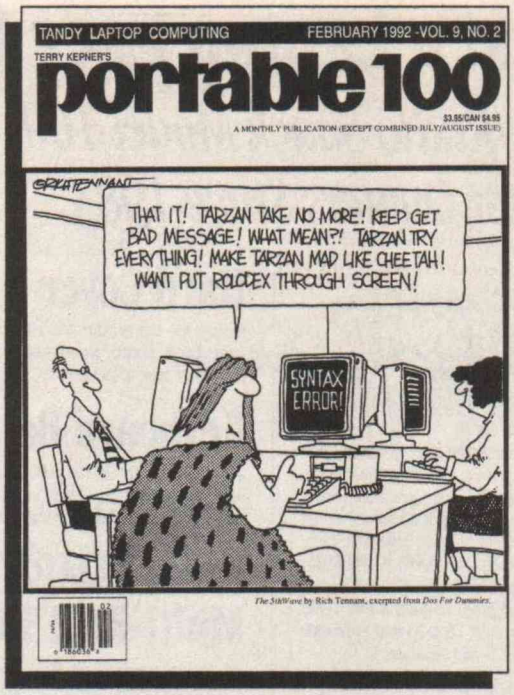
CLUB 100 PO Box 23438. Pleasant Hill. CA 94523 -0438

Circle 165 on reader service card.

VOL. 9, NO. 2
February 1992

ON THE COVER:

Rich Tennant is a talented cartoonist and obvious computer user. He has a new book coming out in March, which we hope to be lucky enough to review in an upcoming issue. Rich's cartoons take an already hilarious Dos For Dummies *and turns it into a laugh riot.. We are very grateful to him for sharing his work with us both inside and on the cover of* Portable 100. *If you see his name on a cartoon book, grab it! You won't be sorry.*



7 DYNAMIC DUO FOR THE NODE DATAPAC

MS-DOS ✔ M-102 WP-2

by Jim Brad

Get more out of your Node Datapac with these two programs.

11 *CARCOUNT*

MS-DOS ✔ M-102 WP-2

by D.R. Rowland

Counting external activites automatically with your Model T.

14 INSTANT UTILITIES WITH *QASM*

✔ MS-DOS M-102 WP-2

by John Comeau

Use the DOS DEBUG *to write source code for your progams.*

20 THE DIFFERENCE BETWIXT BASIC INTERPRETERS, COMPILERS, AND TRANSLATORS

✔ MS-DOS ✔ M-102 WP-2

by Jake Commander

Interpreting, translating, and compiling, they make big differences when you write programs.

21 POKING INTO *TELCOM* AND *BASIC*

MS-DOS ✔ M-102 WP-2

by Terry Kepner

Simple tricks that make a big difference, and how to save your files after a cold-start.

25 POWER STAR TO KEEP IN YOUR CAR

✔ MS-DOS M-102 WP-2

by Bob Liddil

A powerful accessory that keeps your battery charged while you're on the road.

26 *DOS FOR DUMMIES*: A BOOK FOR USERS, NOT HACKERS

✔ MS-DOS M-102 WP-2

by Bob Liddil

A book for people who want to use their computers without becoming computer experts.

27 WHAT ON EARTH COULD THEY BE THINKING?

✔ MS-DOS M-102 WP-2

by Terry Kepner

Imagine, a 9.6MB program . . .

29 *SEARCH.CO*

MS-DOS ✔ M-102 WP-2

by Paul Globman

Searching the ROM for interesting tidbits.

30 *DESKMATE* MEETS *RIGHTWRITER*

✔ MS-DOS M-102 WP-2

by Linda M. Tiernan

Make sure your grammar passes muster.

33 BETTER LETTERHEADS, PART I

MS-DOS ✔ M-102 WP-2

by Mike Nugent

Use Super ROM *to customize your letterheads.*

36 *ULTIMATE ROM II*, PART TWO

MS-DOS ✔ M-102 WP-2

by Gene Wilburn

The conclusion of Gene's comparison.

41 WHO, WHAT, WHEN: THE WP-2 CALENDAR

MS-DOS M-102 ✔ WP-2

by Stan Wong

Make your day and organize your life.

DEPARTMENTS

ROM WITH A VIEW	*Oops! Writers wanted.*	3
I/O	*Dear Daigle, SUPER HERO, and not so cheery news*	4
FORUM	*Teaching number, and AREA.BA for Canada.*	10
PORTABLE 100 CLASSIFIEDS	*Software, hardware, wanted.*	43
ADVERTISERS' INDEX		44

ROM WITH A VIEW

As you may have noticed, the January issue said it included the catalog from Club 100. As you also may have noticed, the catalog was not there.

I won't bore you with the details, but a comedy of errors (or tragedy, depending on your point of view) prevented us from including the catalog. The postal authorities took much exception to the inclusion and we were forced to mail the catalog separately, via third class. And this was over Christmas, with most people gone to visit relatives. So, not only did we mail them separately, they both went out late; the catalog following the magazine by several days (the post office insisted we not mail them together, not even on the same day).

At first, we received lots of calls from people complaining that the catalog must have fallen out of their magazine. We worried that maybe the catalog mailing had been lost, until we got a call from a guy in Canada saying he had received a catalog, but no January magazine!

Anyway, if you haven't received the catalog, drop us a postcard and we'll send one from our small supply of leftovers.

We're putting out a call for writers for the magazine. We can't pay very much right now, only a trade for subscription extensions (i.e., we'll extend your subscription a year, or give a friend or relative of yours a free subscription). We're looking for both Model 100 articles and MS-DOS articles.

For the Model 100, practically any subject is open. We need applications stories (like, perhaps, how Martin-Marietta is using Model 102's to build the fuel tanks used on the NASA Space Shuttles), games (both simple and difficult), graphics (both on-screen and getting it to paper), programming pieces, and just about anything else that works on the Model T.

For MS-DOS, we're interested in application stories, games that run in BASIC or that we can make available on our BBS for readers to download, and reviews of hardware and software of particular interest to portable computer users.

We need a regular columnist for Deskmate reviews (George Sherman was doing a splendid job, but health and other reasons forced him to stop), and someone to help with our MOVING UP column (easing the path for those moving from the Model T family to MS-DOS). Again, we can't offer much except the attraction of your name in print and subscription extensions, although we can supply software for review (which you can keep after the review is finished).

This issue, we welcome Automap to our list of advertisers. *Automap*, as you may recall, lets you create trip maps for for your travels. It's a lot like the maps Triple-A used to make, and lots cheaper. They also have neat software on astronomy and biology.

The portable MS-DOS market is going to heat up this fall, the first real color display machines, at affordable prices, are hitting the market in quantity. Affordable, you ask? Well, they aren't below the two thousand dollar mark, but they have dropped from the nine thousand dollar level to under four thousand.

With these on the horizon, Tandy won't be far behind in producing their own machine. And given their latest track record in inexpensive, top-of-the-line, computers, it ought to be a real humdinger.

Well, I'm out of room now, so see you next month.

tk

Toolbox

Manuscripts were typed into Microsoft Word 4.0 on a Tandy 1500 HD, where they were edited, spell-checked, and had basic format instructions inserted. From there they were loaded into a Tandy 4000 (80386 CPU, Tandy EGA Monitor, Tandy LP-1000 LaserPrinter) desktop computer and placed into Aldus' IBM PageMaker 3.01 Once there, design decisions on photo, figure, and listing sizes and placements were made. Here, pull quotes are placed, headlines, intros, and bylines are sized and positioned, and advertisements positioned.

Normally, the Tandy LP-1000 is capable of emulating only a Hewlett Packard Laser Printer Plus, but with the addition of the Destiny Technology Corporation (300 Montague Expressway, Suite 150, Milpitas, CA 95035. (408) 262-9400) PageStyler 4.5MB kit, the LP-1000 is turned into a fully-compatible PostScript printer, with all 35 native fonts that are found in the Apple LaserWriter Plus printer. The Destiny PageStyler is available through the Tandy Express Order Hardware system.

Page previews were output from the Laserprinter. When everyone was satisfied with the appearance, final pages were output and artwork and line art ads were positioned. The finished magazine was then delivered to the printer, who printed it, labeled it, and mailed it to you.

TERRY KEPNER'S **portable 100**

PRESIDENT/PUBLISHER
Terry Kepner

TECHNICAL EDITOR
Mike Nugent

EDITORS
Terry Kepner
David Klein
David Sprague

NEW PRODUCTS EDITOR
Linda Tiernan

CONTRIBUTING EDITORS
Barbara Schwartz, Paul Globman
Michael Daigle, George Sherman
Stan Wong, Tony Anderson
Gene Wilburn

CIRCULATION
Bob Liddil

ADVERTISING DIRECTOR
Bob Liddil

ADVERTISING ASSISTANT
Pauline Halvonik

BULLETIN BOARD SYSOP
Chris Courson

Portable Computing International Corporation
145 Grove St. Ext., #21, PO Box 428
Peterborough, NH 03458-0428
Tel: 603-924-9455 Fax: 603-924-9441

The Portable 100 Bulletin Board
603-924-9770
(300/1200/2400—8,None,1)

Portable 100 (ISSN 0888-0131) is published by Portable Computing International Corporation, 145 Grove Street Ext., P.O. Box 428, Peterborough, NH 03458-0428. *Portable 100* is an independent journal not connected with any hardware, software, or peripheral equipment manufacturer. *Portable 100* is published monthly, except for a combined July/August issue in the summer.

Entire contents Copyright © 1991 by Portable Computing International Corporation, All Rights Reserved. No part of this publication may be reproduced without written permission from the publisher. Portable Computing International Corporation makes every effort to assure the accuracy of articles published in *Portable 100*, but assumes no responsibility for damages due to errors or omissions.

Subscription Service: All subscription correspondence should be addressed to *Portable 100*, Portable Computing International Corporation, 145 Grove Street Ext. P.O. Box 428, Peterborough, NH 03458-0428. U.S. subscription rates: $19.95, one year; $34.95 two years. Canada and Mexico: US$24.95, one year; US$44.95 two years. All other foreign (surface mail): US$39.95, one year; US$74.95 two years. Foreign Air Mail, add US$50 per subscription year. All payment, except Canada, U.S. funds drawn on U.S. Bank. Second-class postage paid at Peterborough, NH 03458, and at additional mailing offices.

POSTMASTER: Send address changes to: Portable 100, Portable Computing International Corporation, 145 Grove Street Ext., PO Box 428, Peterborough, NH 03458-0428.

Dear Mike Daigle:

I enjoyed your November rant almost as much as I suspect you did. The only point I disagree with (and maybe I'm just ultra-radical) is that I don't feel the Model T needs improvement, so much as support. The machine itself is more than capable of any task short of two way communication with God's own database... (Although, perhaps by connecting the RS-232 through a wafer of unleavened bread . . . hmmm . . .)

What burns my EPROMs is that Tandy has done so little to support their own pretty fabulous machine. When I first got "Rover" (my 102—if you can have a "Farfel", I can have a "Rover") I didn't expect much more than a slightly more sophisticated version of the pocket computer (which was my best pal through high school), but what I got was a magnificently versatile device which thumbed its nose at conventional computers by operating out of a menu-style (largely) non-volatile RAM structure. But to check a Radio Shack catalog, one would think you practically can't get anything to use with it!

If not for this forum and *Portable 100*, I wouldn't know there was such a huge group of Model T supporters, or so much software/hardware available. Tandy acts as though they initially planned to support it, but someone said, "Er, let's try to just forget we made it, and hope that it dies off."

Your Model 300 column started me daydreaming what my ideal would look like, but to tell the truth, I just want the terrorists who locked the 102 designers in a closet to release their hostages and let support for the machine flow again.

What is left unsaid is, "Wake up, you sheep-like world! MS-DOS is past its usefulness!" So, while the zombies stumble after the pack, waiting for the 80986 processor with MS-DOS V. 16.9 factory loaded on its hard drive, Rover and I will still be clicking along nicely! Maybe, just maybe, there will someday be a Model T-esque computer that impresses me, but if it ain't broke, don't fix it. And even if it is broke, fix it — don't throw it out!

Charles Fusner
CompuServe Mail

MODEL 100 RFI?

Just a note to let you know the *PICO* magazines arrived in due time and to give a big thank you for the phone call to advise me my check did in fact get there. Boy, was that a big relief to get out of the "worry time." Incidentally, the newsletter I inquired about was the *Portable Program Review*. Are any of those still be had?

It is my understanding that there is a better DOS for the PDD-11 that is in the public domain, and if so, do you have it on disk? I'd sure like to have it.

Got a question: Couldn't one pick off some signal someplace on a M100 and feed it thru an RF modulator (of which I have two) to act as an interface to a TV for a monitor? How about grabbing signal off the printer I/O? Or feeding signal into a Timex/Sinclair 12000 for the same purpose? Wouldn't that make a compact setup! I'd like to do something like that instead of getting a D/VI. Got any ideas?

Keep up the good work with *Portable 100* magazine. Go back to the early years and pick out some of the better hardware projects and practical program/utility listings and publish them again. I'm sure there are some present users who didn't get a chance at those opportunities and would appreciate it. One thing we can sure use more of is "Hints-N-Tips." These are always interesting and most informative. Keep up the good work. We need more of it.

I'm writing this under the awning of my motorhome. Life can sure be difficult at times. I'm doing my best to endure.

By the way I have five issues of *P100* that you are out of Jul. 84, Aug. 84, Apr. 88, May 88, Dec. 88, You are welcome to borrow them to make copies. Just ask.

Roger Koach
Apple Valley, CA

Sorry, but we did not have anything to do with that newsletter. Don't know who did. Can anyone else help?

The PDD-1 DOS you are looking for is POWR_DOS *and it's available on the Club 100 BBS and on the Model 100 SIG of CompuServe. Plus, in the* PICO *back issues (Nov. and Dec. 86) is a two part article on a small PDD1- DOS. The program and articles were written by J.K. Heilman.*

As for hooking up to a monitor, this is what the Tandy D/VI was for. Other than that, there is no easy way to do it.

We are working on getting some of those old articles reprinted. One of them is in this month's issue. The problem primarily is finding the time to properly research the articles and then type them into a computer for typesetting.

Thanks for your offer of those issues, but we do have one of each for our "morgue" files. We just don't have any extras for regular office use. If anyone would like to donate or sell us those copies from their collection, just drop me a line.

-tk

SUPER HERO SUPER FAN

Was about to let this lapse — but noticed the new *Super ROM* column (SUPER HERO). I keep trying new ideas, but this "personal" help is great! I've had mine since Feb. 87. Super Stuff!

M. Lloyd
W. Columbia, SC

ANOTHER FAN OF SUPER HERO

Like the idea behind SUPER HERO. No doubt *Super ROM* makes 100/102 into something really useful. And more ideas about using this great tool will be most welcome.

F. G. Willard
Oakmont, Pa

NOT SO CHEERY NEWS

At the time of writing, I have just finished reading the November 1991 issue of *Portable 100*. Although I have been wanting to write this letter for months, it was the letter from Ralph Winter in INPUT/OUTPUT that finally got me to meet fingers to keyboard!

Some, if not all, of the things I wish to say are not going to be pleasant to Model 100 users. I am sorry for having to be the carrier of bad news, but everyone keeps asking if it's their breath that offends and I just feel the need to get things straight.

Up until this summer. I was a Model 100 user. I originally purchased it for my wife, who is a fourth-grade teacher. I thought it would give her the ability to keep track of her students and word processing. When I originally presented the nifty little unit to her a year ago, I received less than rave reviews. Showing her how to use it was like teaching a stubborn child how to make her bed. It became evident that I was going to have to find a use for it to salvage the $750.00 invested (this covers the cost of the used Model 100, additional memory, PDD, *Super ROM* and software).

Being an Insurance Broker, I felt I

SUPER ROM

Lucid Spreadsheet Write ROM Database Outliner

Boots the Tandy Portable Drive with one button!

Now Available for the Model 200!

NOW YOU CAN REALLY HAVE IT ALL!

All on one ROM. Truly the finest four programs available for the Model 100 — guaranteed. Try it for 30 days. If you aren't blown away by the excellence return it for a full refund.

$199.95

(Please add $5.00 shipping & handling)

The four best programs for the Model 100 all on one ROM. 32K of power without using any RAM for program storage. This is the PCSG Snap-In ROM that just presses easily into the little ROM socket in the compartment on the back. You access the four right from the main menu like built-ins.

Write ROM — the definitive word processor for the Model 100. Function key formatting or dot commands. Search and replace. Library feature — inserts words, phrases or whole documents into text from just a code. MAP lets you see a picture of your document. In all there are 60 features and functions. No one can claim faster operation. FORM lets you create interactive forms with on-screen prompts that you can answer from the keyboard. Nothing else for the Model 100 compares with the features of Write ROM. Exactly the same as the Write ROM sold as a single program. Infoworld says it "makes the Model 100 a viable writing unit ... surpassed our highest expectations for quality and clarity."

Lucid Spreadsheet: This is the one PICO magazine says "blows Multiplan right out of the socket" and Infoworld performance rated as "excellent" and said "makes the Model 100 compute." Gives you features you cannot get with Lotus 123. Lets you build spreadsheets in your Model 100 that would consume 140-150K on a desktop. Program generating capability with no programming knowledge required. Variable column widths. Includes find and sort with function key control. It's fast, recalculates like lightning. No feature has been taken from the original, only new ones added.

Database: This is a relational data base like no other. You can do everything from mailing lists to invoices. No complicated pseudo-coding, you create input screens as simply as typing into TEXT. You are not limited by size; you can have as large an input screen as you wish. Prints out reports or forms, getting information from as many files as you like. Complete math between fields. Total interface with Lucid worksheets.

Outliner: Does everything that Thinktank does on a PC but a whole lot better. Includes a Sort for your headlines. Lets you have headlines of up to 240 characters. Has cloning, hoisting and sideways scroll up to 250 characters. Like Lucid, this one sets a new standard for outliners. This is the way to plan and organize your projects.

Present Lucid and Write ROM owners can upgrade for $150. If you have both it's $125.

As usual PCSG sells the Super ROM on a thirty day guarantee. If for any reason you are not satisfied, simply return it for a full refund.

We are excited about this product. Super ROM gives the Model 100 the true power of a desktop. No other multi-program ROM has software that compares. But don't take our word for it. We invite you to make that comparison yourself. Priced at $199.95 on Snap-In ROM.

Another fine product from the innovative people at PCSG!

Got stuck with somebody else's multi-ROM? We'll upgrade it for $150.

Distributed by:

Tri-Mike Network East

P.O. Box 372, Peterborough, NH 03458 · 1(603)924-8663

© PCSG

MC, Visa, American Express, Check, or C.O.D.

Circle 72 on reader service card.

USED TANDY LAPTOPS!

TANDY 1400 HD 20 MEG	$ 795.00
TANDY 1400 LT — 2 DR.	$ 595.00
TANDY 1100 FD — 1 DR.	$ 475.00
MODEL 100 — 32K	$ 255.00
MODEL 102 — 32K	$ 285.00
MODEL 200	$ 375.00
NEC MULTISPEED - 2 DR	$ 335.00
PORTABLE DISK DRIVE I 100K	$ 95.00
PORTABLE DISK DRIVE II 200K	$ 125.00
TANDY DMP 105 OR 106	$ 65.00
TANDY TRP 100 THERMAL	$ 65.00
DICONIX INK JET PORT. PTR.	$ 165.00
BROTHER HR-5 THERMAL	$ 65.00
QUAD. COLOR INK JET (CCP220)	$195.00
128K & 256K MEMORY FOR 102	$ CALL
MEM, SOFT, MODEMS & BOOKS .	$ CALL

We Buy & Sell MD 3's - 6000's 1000, 2000's, 3000's, & 4000's

503 236-2949

Pacific Computer Exchange
1031 S.E. Mill St. Suite # B,
Portland, OR 97214
THE ONE SOURCE FOR USED TANDY EQUIPMENT

Circle 45 on reader service card.

BIG/TINY

RAM-Fast Storage

The 256K RAMPAC 102/200 storage cartridge is smaller, faster, and more convenient to use than a disk drive. Removable. Lithium powered.

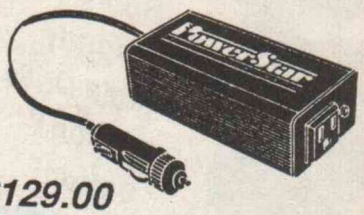
Plugs into the system bus port of all Model 102 and 200's. BIG storage (256K) tiny size (2.4" x 2" x .6"). Built-in file management software supports a 256 file directory. Designed for novice users yet built to handle professional needs. $179 (1 yr warranty)

510-932-8856 voice Visa
510-937-5039 fax M/C

Box 23438, Pleasant Hill, CA 94523

Circle 170 on reader service card.

Portable 120 Volt AC Power In Your Car



$129.00

Power for people on the go. Now you can get convenient AC power from your car battery. The POW-200 plugs easily into your cigarette lighter and can go with you anywhere. Your car can turn into an office with the power to run a computer, phone or fax.

TOLL FREE
1-800-356-4751

SOLARMETRICS
140 Bouchard Street
Manchester, NH 03103
(603) 668-3216

Circle 99 on reader service card.

could use the *Lucid* programing to keep track of clients and prospects. With much work and frustration, I found the task excessively tedious and beyond feasibility. The shortcomings of too little memory and primitive programming were holding me back. Of course, conflicts between programs and cold starts weren't helping me, either.

It finally sunk in that I had to dump this outfit fast and buy a larger capacity computer. Ads at the time made me realize that for a few hundred dollars more than I had in my Model 100 ensemble, I could have bought a dual-floppy 8088 laptop! Well, saying and doing are two different things. Trying to sell my Model 100 was like selling a three-fingered glove. No one wanted it, no matter how I demo-ed it, and believe me, I can sell! Finally I sold the whole outfit for less than half what I paid for it a year ago. Last I heard, the gentleman who bought my outfit has hardly used it!

My reason for retelling this sad story is to set the scenario for what I'm trying to say. When I bought the Model 100, I saw ease of use, portability, light weight and lengthy battery life. In actuality, I received:

1) Frequent cold starts due to incompatibility of programs and peculiarities of the system's architecture.
2) Portability only when the disk drive wasn't needed.
3) The need to practically carry a small suitcase for the unit, drive and peripherals; inability to use the lower wattage, but equal voltage rechargeable batteries to cut expense.

When none of the aforementioned problems were occurring, the programming was too limited and primitive to handle my modest needs.

Where it is true that the Model 100 family has the unique ability to expand, no one has stepped forward and admitted the real problem with doing so — $$. To prove my point, let's make a true-to-life comparison. Last fall, I bought a Bondwell B310P286 16 MHz laptop for $1,500. This price included the laptop with a 40 MB harddrive, 3.5-inch high-density floppy-drive, 1 MB of RAM (expandable to 2 MB), back-light LCD 80-column screen, AC adapter/charger, two nickel-cadmium batteries and a multitude of very usable software. Today the same laptop, less the backlight screen, is selling for $999.00!

Which is the simpler computer to operate, the Model 100 or the DOS-based 286 laptop? Which offers the greater flexibility and expandability? Interesting questions.

Let's make this more fair. Let's add to the Model 100 a Booster Pak with all the ROM and RAM chips it could hold. Let's also add all the popular and available ROM chip and software programs. While we are at it, let's throw in a D/VI or 80-column monitor interface. Any idea what amount you raised the ante? Are we equal yet? The dollar figures are staggering for what will still be a computer running at a clock speed of around 2.5 MHz!

How could this situation be resolved? It can't. That's why the Model 100 will never be anything more with Tandy. It has no future. Ironically, I firmly believe that the future of the computer holds the extensive use of re-writeable ROM chips and cards, instead of the mechanical harddrives of today. In that aspect, the Model 100 is a whisper of the future. But, the Model 100 would have to be totally redesigned to provide the large quantities of RAM and ROM, not to mention be IBM-DOS compatible. As you have mentioned, the compatibility differences between palmtops and laptops are diminishing quickly. The Model 100 is a tired old work-horse that can certainly kick arse with the best of them. But she no longer runs up front with the pack.

If you wish to continue to specialize in this venerable old lady, as your maga-

Continued on page 18.

COMPATIBILITY: Model 100, 102, and 200 computers.

Dynamic Duo for the Node Datapac

Two simple programs: one for moving files, en masse, and another to emulate the main menu in your programs.

by Jim Brad

Here are two programs I wrote for the Model T (issued to each officer in the police department I work for). My department has only about thirty-three officers, making it a bit easier to outfit each of us with this little wonder. The benefits of this foresight have been many, including teaching typing skills and facilitating production of legible reports.

One severe limitation to the Tandy 102, of course, is the memory capacity. The 32K is no match for six two-page reports, per officer, per day. I am assigned to Criminal Investigations, where the length of written reports averages much more than this. As a remedy, I snatched up one of the 128K Node Datapacs. This solid-state disk drive has been a lifesaver for me. The Datapac came with immensely helpful documentation, which sufficed, at first. Then, boredom set in ...

I became dissatisfied with the amount of time it took to load files from the Datapac one by one.

ORIGINS

I don't know if this type of program has been created for the Datapac, but the idea for it came from several motivations. First, and foremost, I became dissatisfied with the amount of time it took to load files from the Datapac one by one. Second, I wanted some process by which I could "tag" multiple files and perform any one of several operations on them (this should plant an idea or two for some of you).

Third was the machine's main menu itself. The simplicity and ease of use at the menu level has made the Tandy 102 one of my favorite computers. I wanted a file (or program front-end) manipulation tool that was equally simple and attractive.

```
10 CLEAR500:CALL16959:MAXFILES=2:ON ERR
OR GOTO 275
15 CLS:S$="":E$=CHR$(27):R$=E$+"p":Q$=E
$+"q":CALL 63013,8
20 GOSUB 280
25 PRINT@133,R$;"B";Q$;"Asic Programs":
PRINT@173,R$;"C";Q$;"O/ML Programs":PRIN
T@213,R$;"D";Q$;"Ocuments"
30 K$=INKEY$:IF K$="" THEN 30
35 K=ASC(K$):IF K=13 OR K=27 THEN 270
40 IF K$="B" OR K$="b" THEN GOTO 60
45 IF K$="C" OR K$="c" THEN GOTO 65
50 IF K$="D" OR K$="d" THEN GOTO 70
55 GOTO 30
60 P=128:GOTO 75
65 P=160:GOTO 75
70 P=192:GOTO 75
75 POKE-1,P
80 CALL 63013,12:X=-1:PRINT@81,"Please
wait, Counting RAMDSK files:"
85 X=X+1:CALL 63013,10,VARPTR(S$):PRINT
@116,X
90 IF PEEK(-1)=0 THEN 95 ELSE85
95 CLS:DIMF$(X)
100 CALL 63013,12
105 POKE-1,P:L=-10
110 CALL 63013,10,VARPTR(S$)
115 L=L+10:I=L/10:F$(I)=LEFT$(S$,6)+"."+
RIGHT$(S$,2)
120 IF L>10 THEN 125 ELSE 130
125 IF F$(I)=F$(I-1) THEN F$(I)=">>DONE<
<"
130 PRINT@L,F$(I)
135 IF PEEK(-1)=0 THEN 145
140 GOTO 110
145 Z=L+10:L=0:PRINT@L,R$;F$(L);Q$
150 K$=INKEY$:IF K$="" THEN 150
155 K=ASC(K$):IF K=13 THEN GOTO 210
160 ON K-26 GOSUB 270,170,180,190,200,17
```

Continued.

Listing 1. FILE+. *If you have a Node Datapac on your Model 100/102, this program lets you "tag" files and move them quickly from the Node to the computer's memory.*

Portable 100 BACK ISSUES

With over 60 issues, and hundreds of articles, *Portable 100* is THE source for information, programs, and applications for your Tandy Portable Computer. But how do you find what you need among all those issues? The answer is the **updated *Portable 100 Article Index.*** Covering every issue from September 1983 to the combined summer 1989 issue, the index is designed to make it simple for you to find what you need. And at a cost of only $9.00 (postage and handling included), you should buy one today! If you have last year's index, don't despair. Update your index by adding our special 1988-1989 Update Index. It's a bargain at just $4 (P&H included).

And what do you do when you find an article you want? Easy. First check the back issue chart below for back issue availability. If the issue is available, just order it using the handy order form ($5.00 each, postage and handling included). If it isn't, don't despair. **Photocopies of any article in a sold-out issue** cost just $2.50 each. Simply list the article, or articles, by title, author, and issue, enclose payment, and in just a short time you'll have the articles in hand.

Month	83	84	85	86	87	88	89	90	91
January			Not Published		Not Published				Not Published
February									
March			OUT						
April		OUT				OUT			
May		OUT				OUT			
June		OUT						Not Published	
July		OUT		OUT		combined July/Aug. issue	combined July/Aug. & Sept. (Summer 1989)		combined July/Aug. Issue
August		OUT							
September	Premier Issue			Not Published		OUT			
October		OUT							
November									
December						OUT			

❑ Send me the 1983-Summer 1989 *Portable 100* Article Index for **$9.00** (Postage & Handling included).
❑ Send me the Sept. 1988-Summer 1989 *Portable 100* **Update Article Index** for **$4.00** (P&H included).
❑ Please send me the back issues I've indicated ($5.00each; shipping &handling charges included).

PAYMENT MUST ACCOMPANY ORDER

❑ CHECK OR M.O. ❑ MC ❑ AMEX
❑ VISA TOTAL ENCLOSED _____

CARD# _____ EXP. DATE _____
(Be sure to include entire card number)

NAME _____

STREET ADDRESS _____

CITY _____

STATE _____ ZIP _____

Please allow six to eight weeks for delivery

Portable 100, Back Issue Department, P.O. Box 428, Peterborough, NH 03458

```
0
165 GOTO 150
170 PRINT@L,F$(L/10):L=L+10:IF L=Z THEN
L=0
175 GOTO 205
180 IF L/10<1 THEN L=Z-10:PRINT@0,F$(1):
L=Z-10:GOTO 205
185 PRINT@L,F$(L/10):L=L-10:GOTO 205
190 PRINT@L,F$(L/10):L=L-40:IF L+40<40 T
HEN L=L+40
195 GOTO 205
200 PRINT@L,F$(L/10):L=L+40:IF L>X*10 TH
EN L=L-40:GOTO 205
205 PRINT@L,R$;F$(L/10);Q$:RETURN
210 IF LEFT$(F$(L/10),2)=">>" THEN 235 E
LSE 215
215 OPEN "TEMP!!.DO" FOR APPEND AS 1
220 F$=F$(L/10):PRINT#1,F$:CLOSE1
225 F$(L/10)="+"+RIGHT$(F$(L/10),8):PRIN
T@L,R$;F$(L/10);Q$
230 GOTO 150
235 S$="":CALL 63013,12
240 OPEN "TEMP!!.DO" FOR INPUT AS 1
245 LINE INPUT#1,S$:IF EOF(1) THEN 260
250 CALL 63013,13,VARPTR(S$):CALL 63013,
23,VARPTR(S$)
255 GOTO 245
260 CALL 63013,13,VARPTR(S$):CALL 63013,
23,VARPTR(S$)
265 CLOSE 1:KILL "TEMP!!.DO"
270 MENU
275 IF ERR=52 THEN MENU ELSE BEEP:MENU
280 CLS:T$=STRING$(40,"@"):'Square made
with Shift-Grph-X
285 PRINT@0,T$:PRINT@280,T$:PRINT@3,R$;"
FILE+.BA for the Node Datapac (tm)":PRIN
T@290,"Written by Jim Brad";Q$:RETURN
290 END
```

FILE+: HOW THE PROGRAM WORKS

Since I'm nontechnical, *FILE+* is written in what I like to call "CRUDE-*BASIC*." It works. It doesn't look pretty nor does it necessarily operate with high efficiency, but it works.

What happens is simple: The program says hello to the operator with a title bar and asks what kind of files you'd like to see. When you respond with the necessary key—*B* for *BASIC* (*.BA*) programs, *C* for machine language (*.CO*) programs, or *D* for text (*.DO*) files—*FILE+* starts counting the number of that type of file in the Datapac and then dimensions *F$* to the same number.

Since the *CALL*s used to list files one by one have a nasty habit

Even we amateurs can enhance our *BASIC* programs.

WP-2 *Internal*
Memory Expansion!

32K RAM — $12
128K RAM *Call for best price!*

Call for 100/102, 200, 600 memory expansion chip prices

Purple Computing
P.O. Box 100
2048 Southside Rd.
Murphy, OR 97533
(800) 732-5012
Fax (503) 479-8089
Visa and MasterCard accepted.

Circle 49 on reader service card.

Ultra-thin Gender Changers!

*Compatible connections in **half** the space! Drawing is ACTUAL SIZE!*

9-pin M/M or F/F $12.00ea
25-pin M/M or F/F $15.00ea

Portable 100—Hardware
P.O. Box 428, 145 Grove St. Ext.
Peterborough, NH 03458-0428
(603) 924-9455
Visa, MasterCard, Amex accepted.
Please allow 6-8 weeks for delivery

Circle 117 on reader service card.

PostScript™ for the LP 1000!

PageStyler... *"See page 36 in your 1990 Computer Catalog."*

DESTINY
Destiny Technology Corp.
408/262-9400

PostScript is a trademark of Adobe Systems Inc.

Circle 5 on reader service card.

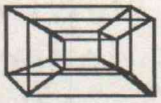
of re-sending the last file, I've told it to check for duplicate file names and, if one is found, call it *DONE*. This serves two purposes: First, it fixes the last file problem, and second, it makes an ideal execution prompt.

File names appear across the screen, and the program emulates the main menu I'm so fond of. When you find the file(s) you're after, simply place the widebar cursor over each and hit *ENTER*. *FILE+* takes the file name, loads it into a temporary file called *TEMP!!.DO*, and makes the first character of the screen file a +. When you have all the files selected, take the widebar down to >>*DONE*<< and hit *ENTER*. If all goes well, the program then cycles back to the main menu and there you have all of the files you selected. *TEMP!!.DO* is killed off just before the *MENU* command. You can leave the program at any time with the *ESC*ape key (or the *ENTER* key at the initial menu).

EMULATE.BA

As you can see, the algorithm I used to emulate the main menu in *BASIC* takes only five or six hundred bytes. I've provided *EMULA TE .BA* (see Listing 2) to show how this can be done so that even we amateurs can enhance our *BASIC* programs.

I hope one of these programs spurs some easy-to-use applications for another out there who, like me, gets by on CRUDE-*BASIC*. I'm certain there's a much more efficient method for accomplishing the same end. Since I've learned *BASIC* from the little book that comes with the Tandy 102, my skills may not be up to snuff. If you have comments, please drop me a line at 70721,3020 on CompuServe.



```
0  'EMULATE.BA By Jim Brad
1  '
5  'E$=Esc code          F$=File/Prompt
    K$=Key pressed       L =Location/File
6  'R$=Rev Video on      Q$=Rev Video off
    T$=Title bar         Z =Last position
7  '
10  CLS:CALL16959:DIMF$(9):'Lock the scr
oll and dimension F$
15  E$=CHR$(27):R$=E$+"p":Q$=E$+"q":'Esc
 codes for reverse video
20  GOSUB 155:CLS:'Get title bars
25  L=-10
30  FOR I=0 TO 8
35  READ F$(I)
40  L=L+10
45  PRINT@L,F$(I)
50  NEXTI
55  PRINT@280,"Hit ESCape to exit"
60  Z=I:L=0:PRINT@L,R$;F$(L);Q$
65  K$=INKEY$:IF K$="" THEN 65
70  K=ASC(K$):IF K=13 THEN GOTO 130
75  ON K-26 GOSUB 145,85,95,105,115,85
80  GOTO 65:'Wait for key
85  PRINT@L,F$(L/10):L=L+10:IF L=Z*10 TH
EN L=0
90  GOTO 125
95  IF L/10<1 THEN L=Z*10:PRINT@0,F$(0):
    L=L-10:GOTO 125
100 PRINT@L,F$(L/10):L=L-10:GOTO 125
105 PRINT@L,F$(L/10):L=L-40:IF L+40<40 T
HEN L=L+40
110 GOTO 125
115 PRINT@L,F$(L/10):L=L+40:IF L>Z*10-1
THEN L=L-40
120 GOTO 125
125 PRINT@L,R$;F$(L/10);Q$:RETURN
130 'Jump here when ENTER is pressed
135 F$=F$(L/10):PRINT@210,F$
140 GOTO 65
145 'Menu jump
150 MENU
155 'Title bars
160 CLS:T$=STRING$(40,"_"):'Square creat
ed with Shift-Grph-X
165 PRINT@0,T$:PRINT@280,T$:PRINT@10,R$;
"MAIN Menu Emulator":PRINT@290,"Written
by Jim Brad";Q$:FOR N=1 TO 700:NEXT:RETU
RN
175 'Data statements contain whatever yo
u want F$ to be
180 DATAGOSUB1,GOSUB2,GOSUB3,GOSUB4,GOSU
B5
185 DATAGOSUB6,GOSUB7,GOSUB8,GOSUB9
200 'END
```

Listing 2. EMULATE.BA. *This program shows how you can create your own main menu, or modify the existing menu for the Model 100/102.*

TEACHING NUMBER RELATIONSHIPS

Here is a simple program I wrote for my children. It asks the child to determine if the first number generated by the program is larger than the second. A capital Y signifies a yes and a capital N means no. If the child is successful, some stick men appear across the top of the screen with the computer playing a descendng musical scale. If the child makes a mistake, the computer beeps and the child gets to try again. The program generates the numbers based on the random number generating sequences starting in lines 320 and 420.

Charles B. Tichenor
Springfield, VA

```
10 REM NUMBERS
25 Y=415
30 CLS
40 PRINT:PRINT
50 PRINT"              N U M B E R S"
62 FOR X=160 TO 199 STEP 3
64 PRINT @X, CHR$(147)
67 SOUND Y,10
68 Y=Y+60
69 IF Y=12535 THEN Y=415
70 NEXT
75 PRINT"Is the first number bigger than the          second number?"
80 PRINT
320 A=RND(1)
330 B=INT(100*A)
340 IF B>47 AND B<58 THEN PRINT @ 372,CHR$(B) ELSE GOTO 320
410 S=B
420 A=RND(1)
430 B=INT(100*A)
432 T=B
435 IF T=S THEN GOTO 320
440 IF B>47 AND B<58 THEN PRINT @ 386,CHR$(B) ELSE GOTO 420
450 T=B
500 INPUT M$
510 IF CHR$(S)>CHR$(T) AND M$=CHR$(89) THEN GOTO 600
520 IF CHR$(S)>CHR$(T) AND M$<>CHR$(89) THEN BEEP:GOTO 500
525 IF CHR$(S)<CHR$(T) AND M$=CHR$(78) THEN GOTO 600
530 IF CHR$(S)<CHR$(T) AND M$<>CHR$(78) THEN BEEP:GOTO 500
600 SOUND 2800,10:SOUND 2800,5:SOUND 2800,5:SOUND 2800,20
610 GOTO 30
700 IF CHR$(S)<CHR$(T) THEN BEEP:GOTO 500
```

Listing 1. Charles Tichenor's program for teaching children numbers and the keyboard.

Yes, the clocks in Newfoundland are indeed one hour and thirty minutes ahead of those in New Hampshire.

AREA.BA IMPROVEMENTS

The lines given in listing two, if inserted in the *AREA.BA* program published in the September 1991 *Portable 100* (Vol. 8, No. 6, page 15), will add a Canadian capacity to it.

Perhaps a reader from the Northwest Territories can give us some assistance with all the narrow time zones that these polar territories dictate, and yes, the clocks in Newfoundland are indeed one hour and thirty minutes ahead of those in New Hampshire.

Michael P. Hermansen
Breton, AB Canada

```
45 DATA "AB Alberta 403",2
65 DATA "BC British Columbia 604",3
205 DATA "NF Labrador 709",-1
225 DATA "MB Manitoba 204",1
312 DATA "NF Newfoundland 709",-1.5
315 DATA "NB New Brunswick 506",-1
372 DATA "NT Northwest Territories, 403 Yellowknife; 809
Iqaluit ",0,1,2
375 DATA "NS Nova Scotia 902",-1
395 DATA "ON Ontario, Toronto 416, Ottawa 613; London 519,
Barrie 705, Thunder Bay 807",0
412 DATA "PE Prince Edward Island 902",-1
415 DATA "PQ Quebec, Montreal 514, Hull 819; Quebec City
418",0
425 DATA "SK Saskatchewan 306",1
535 DATA "YT Yukon 403",3

Perhaps a reader from the Northwest Territories can give us
some assistance with all the narrow time zones that these polar
territories dictate, and yes, the clocks in Newfoundland are
indeed one hour and thirty minutes ahead of those in New
Hampshire.
```

Listing 2. These modifications add Canadian capacity to AREA.BA *(September 1991, pg 15).*

COMPATIBILITY: Model 100/102, NEC PC-8201A, Olivetti M-10 computers.

CARCOUNT

Count cars, count rock stars, count bad guys, count Draculas, count anything.

By D. R. Rowland

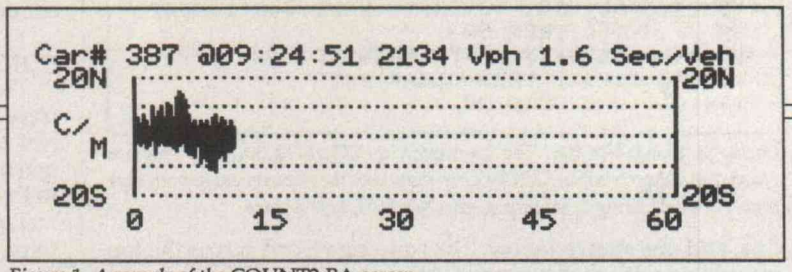


Figure 1. A sample of the COUNT2.BA *screen.*

COUNT2.BA (see Listing 1) was written to count traffic moving past a point. There is specialized equipment for that purpose, of course, but it is expensive, cumbersome, under bureaucratic control, a temptation to thieves and vandals, and ofttimes more trouble than it is worth for a quick and dirty count.

But add some pressure hoses, a simple relay device, power supply, and a nice strong box to chain to the nearest telephone pole, and you could have a car counter that rivals the best available, just by hooking up one's trusty Tandy M100/102 or NEC PC-8201A and running a close cousin of *COUNT2* as shown in the listings. The program would need about 8.5K of storage for all the data that was generated in 24 hours.

YEAH, BUT WHAT CAN WE DO WITH IT?

Since this article is not being printed in *Highway Technicians Monthly*, we'd best talk a little about what the rest of us might use it for. *CARCOUNT* can be used in any activity that needs to record occurrences of two events relative to time. Time/motion and animal behavior studies come to mind. Or it could monitor such scientific endeavors as recording all the "um's" (one key) and "like you know's" (other key) in a rock star's news conference, or all the good guys and civilians (one key) and bad guys (other key) done away with in a Rambo movie.

Once you have your record, *SUMMRY.BA* (see Listing 2) reruns the data collected by *COUNT2.BA* as a graph so you can see what data you collected, and confirm, for example, that the villains do in a lot of people early in the movies but meet bad ends in wholesale lots near the end. If that's what you want to use it for, the running record on the top line of *COUNT2.BA* (see Figure 1) could be changed easily enough, if you like, to

- Dead #143 @ 18:42 900 Kph 4.0 Sec/Kill -

by playing around with the *PRINT* statements in lines 80 and 100.

COUNT2.BA is simple to use. You can start entering events immediately after starting the program, even before the screen is fully set up. Use one key ([or { on the NECCY, Z or z on the M100) to record one type of event (dead bad guys) and the other (] or } = NEC, / or ? = M100/102) to record the rest of the mayhem.

Every 20 seconds, the program plots the events of that latest period on the scale, with one event type shown above the base

```
0 REM COUNT2.BA copyright (c) 1991
1 REM   by D.R. Rowland  [72277,1433]
10 SCREEN ,0:OPEN "CARS" FOR APPEND AS 1
:PRINT #1,DATE$:PRINT#1,LEFT$(TIME$,5):D
EFINT J-Y:POWER CONT
20 CLS:J=0:PRINT:PRINT "^20N";SPACE$(32)
;"20N^^":PRINT "^C/":PRINT "^^^M":PRINT:
PRINT "^20S";SPACE$(32);"20S^^^^^^0^^^^^
^15^^^^^30^^^^^^45^^^^^60";:N=32
30 IF N<212 THEN N=N+3:PSET (213,4+(N/4.
5)):PSET (32,4+(N/4.5)):FOR M=11 TO 51 S
TEP 10:PSET (N,M):NEXT
40 B$=TIME$:B=3600*VAL (LEFT$(B$,2))+VAL
 (RIGHT$(B$,2))+60*VAL (MID$(B$,4,2)):IF
 B<D THEN D=D-86400
50 IF (J=180)*(S>50) THEN 20
60 IF ((B-D)/20=INT((B-D)/20))*(S>60) TH
EN J=J+1:FOR Y=31-X TO 31+W:PSET (J+32,Y
):NEXT Y:P=P+X:Q=Q+W:X=0:W=0:S=0:IF J/3=
INT (J/3) THEN PRINT #1, USING "##";P;Q:
P=0:Q=0
70 A$=INKEY$:S=S+1:IF (A$="Z")+(A$="z")
THEN X=X+1 ELSE IF (A$="/")+(A$="?")THEN
 W=W+1 ELSE IF A$=CHR$(27) THEN CLOSE:PO
WER 100:MENU ELSE 30:REM Use this line f
or 100/102
71 A$=INKEY$:S=S+1:IF (A$="{")+(A$="[")
THEN X=X+1 ELSE IF (A$="}")+(A$="]")THEN
 W=W+1 ELSE IF A$=CHR$(27) THEN CLOSE:PO
WER 100:MENU ELSE 30:REM Use this line f
or NEC
80 PRINT @0,"Car#";K+1;"@";B$;:REM Use i
n M100/102
81 LOCATE 0,0:PRINT "Car#";K+1;"@";B$;:
REM Use in NECCY
90 K=K+1:IF K=1 THEN D=B:S=0:GOTO 30
100 E=(K-1)/(B-D):PRINT INT(3600*E);"Vph
";INT(10/E)/10;"Sec/Veh^^";:GOTO 30
```

Listing 1. COUNT2.BA. *A program to count things—cars, animal behaviors, movie mayhem, whatever. For compatibility, carets (^) are used here instead of spaces, so when you see a caret, type a space.*

```
0 REM SUMMRY.BA  copyright (c) 1991
1 REM   by D.R. Rowland  [72277,1433]
2 REM
10 CLS:SCREEN ,0:OPEN "CARS" FOR INPUT A
S 1:DEFINT J-Y
20 INPUT #1,B$,C$
30 PRINT B$,"Start at^";C$:PRINT "^40N";
SPACE$(32);"40N^^":PRINT "^C/":PRINT "^^
^M":PRINT:PRINT "^40S";SPACE$(32);"40S^^
^^^^0^^^^^^15^^^^^30^^^^^^45^^^^^60";
40 FOR N=32 TO 212 STEP 3:PSET (213,4+(N
/4.5)):PSET(32,4+(N/4.5)):FOR M=11 TO 51
 STEP 10:PSET (N,M):NEXT:NEXT
50 IF EOF(1) THEN 90
60 INPUT #1,A$:P=VAL (LEFT$(A$,2)):Q=VAL
 (RIGHT$(A$,2))
70 FOR S=0 TO 2:FOR Y=31-INT(.5*P) TO 31
+INT(.5*Q):PSET (J+33,Y):NEXT:J=J+1:NEXT
80 IF J<180 THEN 50
90 A$=INKEY$:IF A$="" THEN 90
100 IF EOF(1) THEN CLEAR:MENU
110 CLS:J=0:GOTO 30
```

Listing 2. SUMMRY.BA. *The companion to* COUNT2.BA, *this program graphs the data created by* COUNT2 *to show how the occurrences happen over time. As with Listing 1, when you see a caret (^), type a space.*

line, and one shown below. The running record across the top is updated with each keypress. After each minute, the program sums up each type of event for the period and saves it in a file called *CARS.DO*.

RAMBO-ING AROUND THE CLOCK

Since Rambo is not a one reel film (unfortunately), and traffic just keeps moving, you may need to collect more than one hour of data. All taken care of. The screen holds an hour's worth of data, and after a short pause to contemplate the running record, the screen clears and starts in again.

When the screen clears at the end of each hour, this does not mean your data is lost, however. *COUNT2.BA* has been busy squirreling the data away in the file called *CARS.DO*.

You say that Rambo is on a second bill that runs past midnight? No problem, more built-in brilliance to maintain the record. When you are finished counting cars or bodies, just press *ESC*, and it returns you to the main menu.

SUMMRY.BA is also easy to use. Just press any key to move forward in time from screen to screen.

Since Rambo is not a one reel film, and traffic just keeps moving, you may need to collect more than one hour of data.

TYPING THEM IN

I wrote the programs so they would run on both the NEC PC-8201A and the Tandy 100/102, so *LINE* wasn't used, since NECCYs don't do *LINE*s. It should also run on the Olivetti M-10, but hasn't been tested. There is a single *PRINT @* in *COUNT2.BA*, with the corresponding *LOCATE* on the following line for the NECCYs among us.

I created the screen in part by the judicious use of spaces. To help you get them right when typing in the program, they are replaced by carets (^), to eliminate confusion. So when you see a caret in the program, type a space.

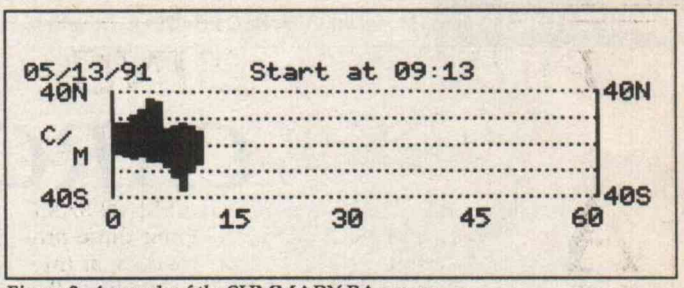


Figure 2. A sample of the SUMMARY.BA *screen.*

The keys used to record events on the 100/102 differ from the NECCY because of a different keyboard layout. You can change these keys in *COUNT2.BA* to ones you like and feel comfortable in using, by modifying line 70 or 71.

COUNT2—LINE BY LINE

Line 10—The *SCREEN* command gets rid of the labels and frees up the bottom line of the screen for use in the program. The rest of the line *OPEN*s a text file to store the data that it will generate and places into this file the current *DATE$* and *TIME$* to the nearest minute.

Line 20—This creates the titles in the screen image, and sets two variables; *J* is incremented by one every 20 seconds, and on reaching 180 (60 minutes times 3 increments per minute) after one hour, causes line 50 to jump back to this line, clear the screen, and start the graph over on the next hour. I used the other variable, *N*, in line 30 to keep track of which line is being plotted in the opening graph on the screen.

Line 30—The beginning of the main loop in the program. As long as *N* is less than 212, the opening graph has not been completed, and this line plots a bit more of it. I did this so that you can start counting vehicles or bodies right from starting the program, rather than waiting until the screen is complete. Once *N* reaches 212, this line is ignored.

Line 40—This determines the present time, to be held as a variable *B*. At midnight, *B* changes from 86,400 (24 hours times 60 minutes times 60 seconds) to zero at the first tick past the hour. *D* is the starting time, set in line 90. Subtracting 86,400 from *D* (the time you started this program, set in line 90) each time you pass midnight allows the program to run through the midnight hour, and for as long as you want.

Line 50—This sets *J* to zero in line 20, and line 60 increments it. Line 50 tests if *J* is equal to 180, which, if it is, means that the screen is full. So if it is, then the program cycles back to line 20, clears the screen, sets *J* back to zero, and starts to make up a new screen.

The variable *S* is a number whose sole purpose is to keep the screen from immediately clearing and starting to redraw before you have a chance to look at the new value that was just plotted. It is reset to 0 every 20 seconds in line 70 (for NEC's; use line 71 for M100's) when that line plots the results of the previous 20 seconds of car counting, and it is incremented that same line 70 (line 71) each time the program loops past.

PRINT #1, USING QUIRK

An interesting little anomaly about M100 *BASIC* showed up while I was developing these programs. In line 60 of *COUNT2*, the data, as integers, are saved with *PRINT #1, USING "##";P;Q*, since *P* or *Q* will be one- or two-digit numbers (unless a high speed funeral happens to pass, or Rambo sets off a bomb). But in line 60 of *SUMMRY*, the same data can only be consistently called back as a string, with *INPUT #1, A$*, and then manipulated. Using *INPUT #1,P;Q* gives an error if one of the numbers saved in *COUNT2* is more than one digit. If three or more #'s are used in line 60 of *COUNT2*, then the data can be recalled in *SUMMRY* with either *INPUT #1, A$* or with *INPUT#1, P,Q*.

I stayed with the version I used, since it reduces the data stored by 25 percent. Over 24 hours, that's about 3,000 bytes.

Line 60—Tests if 20 seconds of car counting has gone by. The variable *S* is used here to keep the program from mistaking zero seconds for 20 seconds. If 20 seconds have gone by, then *J* is incremented by one, the number of cars in that 20 seconds (variables *X* and *W*) are plotted by the *PSET* statements, the values added to the number of cars in that minute (variables *P* and *Q*), and *X* and *W* set to zero to start counting again. If this 20 second increment completes a minute, then *J/3* equals *INT(J/3)*, and the number of cars in that minute (*P* and *Q*) are appended to the *CARS.DO* file, and it resets *P* and *Q* to zero.

Line 70 and 71—two versions of the same line, one (line 70) for use with the Model 100/102, and the other (line 71) for use with the NEC PC-8201A. The appropriate line, depending on your computer, uses *INKEY$* to test if a key has been pressed, and determines if one of the two keys that are used to count cars has been pressed, or if the *ESC*ape key has been pressed. If *ESC*ape is pressed, the program is over, and you return to the main menu.

If one of your hot keys has been pressed, then the *X* or *W* variable is incremented, and the program proceeds to line 80. If nothing has been pressed, or a cold key used, then the program jumps back to line 30 after incrementing the *S* counter used by lines 50 and 60.

Line 80 and 81—If line 70 or 71 passes the program down to here, then a car has come past, and the top line of the screen is updated. Line 80 is for M100/102 users; line 81 is for the NECCY.

Line 90—The variable *K* is for "Kar" number, and it is incremented here each time a car passes. On the first car, when *K* becomes one, *D* becomes the current time, *S* is set to zero, and control of the program jumps to line 30 to avoid a division by zero error in line 100.

Line 100—Calculates and prints to the screen the number of cars per hour and seconds per vehicle, and then jumps back to line 30.

D.R. Rowland is a civil engineer who, when he is not being polite, can be found lurking on CompuServe [72277,1433], probably plotting messages vs. time on a graph.

ULTRASOFT HAS 'EM!!!

WE'VE GOT 'EM ALL!!!

The Hard-to-Find Accessories,
Software and Peripheral Solutions You Need
For Your Laptop, Notebook, and Palmtop!!!

We Support the Following Models by Telephone, Fax, or Mail Order:

Tandy 100/102/200
Tandy WP-2
Tandy 1100 FD
Tandy 1400 LT/FD/HD
Tandy 1500 HD
Tandy 1800 HD
Tandy 2800 HD
Tandy 2810 HD
Tandy 3810 HD
Panasonic CF-150/170/270/370
HP 95LX Palmtop
Atari Palmtop Portfolio
Poqet PC-Computer

We Also Carry:

The Kodak **Diconix 150+** Portable Printer
and the **Canon BJ-10e** Portable Printer

We've got those hard-to-find:

Carrying cases for Laptop & Printer,
and overseas 220V & 240V AC Adapters
In Stock for all you globetrotters, too!!!

WE HAVE THE SOLUTIONS FOR ALL YOUR LAPTOP, NOTEBOOK AND PALMTOP NEEDS!!!

Call, Fax, or Write Today
for a FREE Catalog

Please specify the Make and Model of your Laptop, Notebook, or Palmtop.

UltraSoft Innovations

1 Transborder Drive, PO Box 247
Champlain, NY 12919
Tel: (514) 487-9293
Fax: (514) 487-9295
9-5 EST Mon-Fri

VISA, MC, and AMEX Orders Accepted!!!
Also, Government & Educational P.O.'s!!!
Quantity Discounts Available!!!
Canadian and Dealer Orders Welcome!!!

Circle 134 on reader service card.

COMPATIBILITY: All MS-DOS computers.

Instant Utilities with *QASM*

Don't bother with fancy assemblers; use DEBUG *to write your source code.*

by John Comeau

Once in a while, I stumble across something so incredibly SIMPLE that I kick myself that I never thought of it before.

About four o'clock in the morning one fine day in October, I was messing around in *DEBUG* on my MS-DOS clunker, and typed in what you'll see in the listings as *TURBO.ASM*. All it does is put my crummy XT compatible into "high" speed. But it does the job in only seven bytes, and from the DOS command line!

I had never thought writing executables could be so ridiculously easy. Then I thought, well, why not make a batch file to do the assembly, so if I start writing something a little more complex I can keep the commented source code? This took me a few more hours to get it right, using all sorts of redirected input and output, but then I had one more tool for my box—*QASM*, a quick assembler. Now I could make all sorts of little tools using that one.

I had never thought writing executables could be so ridiculously easy.

TAKE A PEEK

PEEK.ASM is an example. It returns the contents of an address anywhere in

```
@echo off
if %1F == F goto nofile
set debug=FALSE
if %2T == debugT set debug=TRUE
if %2T == DEBUGT set debug=TRUE
if %debug% == TRUE echo on
if not exist %1.asm goto quit
copy prefix.asm+%1.asm+suffix.asm %1.tmp >nul:
if not errorlevel 0 goto copyerr
if %debug% == TRUE pause
debug %1.com <%1.tmp |find "^C">%1.tm2
if %debug% == TRUE pause
debug %1.tm2 <subtract.dbg >nul:
debug <%1.tm2 |find/v "-">%1.tm3
if %debug% == TRUE pause
del %1.tmp
debug %1.tm3 <rcx.dbg >nul:
copy prefix.asm+%1.asm+%1.tm3 %1.tmp >nul:
if not errorlevel 0 goto copyerr
if %debug% == TRUE pause
debug %1.com <%1.tmp >nul:
goto exit
:quit
echo %1.ASM not found
goto exit
:nofile
echo no .ASM file was specified. (Don't use the .ASM
extension!)
goto exit
:copyerr
echo Error creating %1.TMP file. Check disk contents!
:exit
if %debug% == FALSE del %1.tm?
```

Listing 1. QASM.BAT. *A quick assembly language assembler using* DEBUG *to create short utility programs for MS-DOS.*

```
a
```

Listing 2. PREFIX.ASM. *A file needed for* QASM *to run.*

```
^Cq
```

Listing 3. SUFFIX.ASM. *A second file needed for* QASM *to work. Note: The* ^C *is a real* CONTROL-C. *Enter it from* EDLIN *using* CONTROL-V, *then* C. *It won't look like it worked, but after you finish insert mode and list it, you'll see that it did.*

```
m105 109 101
e100
68  31 30 30 0d 0a 71 0d 0a
w
q
```

Listing 4. SUBTRACT.DBG. *A third file needed for* QASM.

```
e100
3 72 63 78 0d 0a  77 0d 0a 71 0d 0a
rcx
12
w
q
```

Listing 5. RCX.DBG. *The fourth file needed for* QASM.

```
jmp f000:fff0 ;jump to PC or XT BIOS boot routine
              ;change to what's appropriate for your CPU
```

Listing 6. BOOT.ASM. *A miniscule assembly language program, which you can assemble with* QASM.BAT *(see Listing 1). It reboots your MS-DOS computer without your having to turn it off.*

```
mov  al,80  ;bit 7 gates 10MHz clock to CPU in LASER XT
mov  dx,01f0;this port is on the support logic PLD
out  dx,al  ;send it
ret         ;and back to DOS through INT 20 in PSP
```

Listing 7. TURBO.ASM. *A short program, a software switch, that switches your XT compatible computer from regular to turbo speed.*

memory. This can be useful to programmers who want their software to be "smart" enough to install itself on the customer's computer. By looking at certain locations in the BIOS, you can find out lots of information about what's in the box.

One item is the level of compatibility. See the listing for *WHATARYU.COM*, which uses *PEEK* to find out what kind of IBM compatible your computer is. Another useful tool would be a means of returning a menu choice to a batch program. *MCHOICE* allows up to 255 selections, I hope sufficient for most menus. The DOS interrupt turned out to be better than I thought, beeping a warning if the user tried to type in too many digits. See *BIMBO.BAT* for an example of *MCHOICE* in action.

Now I can make all sorts of little tools using that.

Note that these last two programs, *PEEK* and *MCHOICE*, are at about the limit of complexity you'll want to deal with using *QASM*. Debugging and editing is a time-consuming and frustrating effort when one must change the jump addresses by an unknown amount each time one adds or changes instructions.

When you're ready for bigger and better projects, but don't have the computer capacity or budget for Microsoft's or Borland's offerings, I recommend *A Small C Compiler* by James E. Hendrix, published by M & T Books. Besides including all the source code and executables for a subset C language compiler, the disk that comes with the book has an assembler that is far more useful than *QASM*. All this for about $25!

Enough said. Even with other language compilers and assemblers

TANDY MODEL 100

NOTEBOOK COMPUTER

Only $ 199 Used

32K RAM with

160K Bubble Memory Expansion

Includes: Built-in Software - Word Processor
- Address File - Schedule Keeper - BASIC
- Bubble Memory Manager (5 Pages of 32K)

Model 100 or 102
160K Bubble Memory Expansion

Only $89 Used SoundSight Brand
Includes Powerr Supply for Computer & Memory

DMP - 105 Printer (Used)	**$89**
Tandy Blue Cloth Carrying Case (New)	**$29**
(will not hold computer with Bubble Expansion)	
Multiplan ROM Spreadsheet	**$39**
(Without Instruction Manual)	

COMPUTER RESET

(214) 276-8072

P.O. Box 461782
Garland, TX 75046-1782
FAX & BBS (214) 272-7920

TERMS: COD or Prepaid, No Credit Cards
Shipping is not included — Warranty: 10 day Replacement

Circle 142 on reader service card.

T-200 Enhancement

XOS (Cross bank Operating System) will enhance your Tandy 200 and allow the three banks to share programs and data. XOS will bring a new level of computer functionality at the MENU, from BASIC, TEXT, and TELCOM.

From the Tandy 200 MENU you will be able to enter memos, rename files, set alarms, display and run programs that are in other banks, and much more.

Cut TEXT from one bank and PASTE it to a file in another bank. Open a "window" while editing in bank #1, and view other files from bank #2. Disable "word wrap" while editing for another perspective of your TEXT file.

While on-line with TELCOM, display FILES and Bytes Free, enter and edit TEXT files, or jump to another RAM bank without losing the host computer connection.

BASIC programs can read/write to files in other banks. Jump to programs in other banks or bring the program into the current bank and run it.

XOS provides fundamental database entry and retrieval functions with user defined fields, prompts, and display parameters. A bargain at **$24.95**

Node Datapac Users Replace your ROM!!

RAMDSK.CO will replace the Node ROM and allow you to use one of those other ROMs you've always wanted. Retain all of the Node menu functions, plus the ability to move, kill, and name Datapac files under program control. A MUST for Node Datapac owners who have other option ROMs. RAMDSK.CO is available for the **M100/M102 and T200... only $24.95**

N-READ.CO will allow a BASIC program to read a TEXT file stored in the Datapac without moving the file into RAM. An absolute necessity for multi-file database projects where the datafiles are kept in the Datapac. N-READ.CO is only **$9.95** but is yours for **$5** when ordering RAMDSK.CO.

For Your Amusement...

A beguiling PUZZLE/GAME program for your Tandy 200. A logical challenge that will keep you busy for many hours. Only **$10.00** for PUZZLE #3. Order with XOS or RAMDSK.CO and I'll send three additional puzzle/game/maze programs for your Tandy 200, at NO EXTRA CHARGE.

Software shipped on PDD1 (100K) diskette. All prices include shipping. Send your order with check or M.O. to:

Paul Globman
9406 NW 48th St., Sunrise, FL 33351

Circle 121 on reader service card.

around, there are some tasks that just don't need a heckuva lot of processing to accomplish, but which Microsoft didn't get around to including in DOS. For little jobs such as these, *QASM* and your assembly language skills will conquer handily.

```
mov  di,80   ;point to PSP command line buffer
xor  ax,ax   ;clear registers
mov  bx,ax
mov  cx,ax
mov  cl,[di] ;get count byte
inc  di      ;point to next character of input
mov  bl,[di] ;and load it in
cmp  bl,09   ;tab?
jb   13c     ;error if below
jz   15a     ;otherwise loop
cmp  bl,20   ;space?
jb   13c
jz   15a
cmp  bl,30   ;"0"?
jb   13c
cmp  bl,3a   ;number or ":"?
jb   145
jz   165
cmp  bl,41   ;A-F?
jb   13c
cmp  bl,47
jb   145
cmp  bl,61   ;a-f?
jb   13c
cmp  bl,67
jb   145
;error:
mov  ax,900  ;DOS function to spit out string
mov  dx,16d  ;point to error (help) message
int  21
ret
```

Continued.

ASSEMBLY LANGUAGE

```
;convert:
 add  bl,b0
 jnc  14d
 add  bl,9    ;convert letter to HEX nybble
 shl  ax,1    ;move over for new nybble
 shl  ax,1
 shl  ax,1
 shl  ax,1
 and  bl,0f   ;mask off high nybble
 add  ax,bx
 loop 10b     ;process all input
 push ax      ;now get peeked byte
 pop  di
 es:
 mov  al,[di]
 mov  ah,4c
 int  21
;seg:
 push ax
 pop  es      ;left of colon now in segment register
 xor  ax,ax   ;clear register for displacement word
 loop 10b
 jmp  15c     ;peek seg:0 if no more input
;errmsg:
 db   0d,0a,"Usage: PEEK SSSS:DDDD$"
```

End of listing.

Listing 8. PEEK.ASM. *With this program, you can peek into any address in your computer's memory and explore its contents.*

```
mov  di,80 ;point to PSP command line buffer
xor  ax,ax ;clear registers
mov  bx,ax
mov  cx,ax
mov  cl,[di]  ;get character count
cmp  cl,1  ;anything at all?
jbe  11d   ;if not, skip directly to input routine
add  di,cx ;now point to end of prompt string
inc  di
mov  byte ptr [di],24 ;put a "$" there
mov  ah,9  ;DOS string output function
mov  dx,82 ;point to beginning of prompt string
int  21
mov  dx,200;point to input buffer
mov  di,dx ;get response ...
mov  byte ptr [di],4  ;room for 3-digit input
mov  ah,0a ;DOS buffered input function
int  21
inc  di    ;point to return count
mov  cl,[di]  ;and load ...
or   cl,cl ;if nothing, quit
jnz  131
ret        ;error exit, nothing placed in ERRORLEVEL
xor  ax,ax ;let's use AX to return the value
mov  dh,0a ;since it's decimal, multiplier is 10
inc  di
mov  bl,[di]  ;get next input byte
cmp  bl,30 ;make sure it's a decimal digit
jb   130   ;otherwise, return 0
cmp  bl,39 ;don't allow spaces or tabs in input ...
ja   130   ;known as "user hostile" programming
and  bl,0f ;mask off high byte ...
mul  dh    ;multiply current value by 10 ...
add  ax,bx ;and add in this digit
cmp  ax,100;make sure we don't go over the limit
jnc  130
loop 135   ;repeat for each byte of input
mov  ah,4c ;return function, gives AL in ERRORLEVEL
int  21
ret        ;error exit, nothing placed in ERRORLEVEL
```

Listing 9. MCHOICE.ASM. *An assembly language program that you can use in a batch program using* ERRORLEVEL *(see Listing 11).*

```
@echo off
peek f000:fffe
if errorlevel 255 goto pc
if errorlevel 254 goto xt
if errorlevel 243 goto pcjr
if errorlevel 252 goto at
if errorlevel 251 goto xt
echo I don't know what the heck I am!
goto exit
:xt
   echo I'm XT compatible.
   goto exit
:at
   echo I'm AT compatible. Top of the line.
   goto exit
:pcjr
   echo I'm an orphan. My name's PC-Jr.
   goto exit
:pc
   rem First, see if it's a Tandy 1000 series
   peek fc00:0
   if errorlevel 34 goto oldIBM
   if errorlevel 33 goto t1000
:oldIBM
   echo I'm just an old-fashioned PC.
   goto exit
:t1000
   echo I'm one of Tandy's 1000-series
computers.
:exit
```

Listing 10. WHATARYU.BAT. *A batch program, using* PEEK.ASM *(see Listing 8), that tells you what kind of computer you have.*

```
@echo off
:mainmenu
rem first, clear the screen
cls
echo    MAIN MENU
echo ---------------------
echo 1. Copy the disk in A: to B:
echo 2. Format the disk in B: as a DATA disk
echo 3. Format the disk in B: as a PROGRAM disk
echo 4. Run a program
echo 5. Exit to DOS
echo ---------------------
mchoice Well, what are you going to do, Bimbo?
if errorlevel 6 goto sorry
if errorlevel 5 goto msdos
if errorlevel 4 goto program
if errorlevel 3 goto forprog
if errorlevel 2 goto fordata
if errorlevel 1 goto diskcopy
:sorry
echo Sorry, Bimbo, that was not on the menu!
pause
goto mainmenu
:msdos
echo OK, Bimbo, I sure hope you know what you're
doing.
goto exit
:program
rem replace this with the program name you want
Bimbo to run
gwbasic
goto mainmenu
:forprog
format b:/s/v
goto mainmenu
:fordata
format b:/v
goto mainmenu
:diskcopy
diskcopy a: b:
goto mainmenu
:exit
```

Listing 11. BIMBO.BAT. *A batch program, using* MCHOICE, *that acts as a menu for your IBM compatible.*

Instant Help On The Go

On the Keyboard...

NEW LAPTOP TEMPLATE KITS. Famous MICROREF design in a universal kit to fit today's laptop/notebook keyboards. Pocket-size guide included. Available for WordPerfect 5.1 and Lotus 1-2-3. Only $14.95.

In the Computer...

MICROREF QUICK HELP. The only on-line guide that's comprehensive *and* easy to use. No more searching through complicated manuals. Available for most popular PC software. Only $29.95.

To order call us toll-free:
1-800-553-2212
708-498-3780, FAX708-498-0185

MICROREF
Educational Systems, Inc.
Northbrook, IL 60062

Circle 175 on reader service card.

MOVING?

SUBSCRIPTION PROBLEM?

Get help with
your subscription
by calling Shaun at:

1-603-924-9455

Between 9 A.M and 5 P.M. E.S.T.,
Monday thru Friday.

If possible, please have your mailing label in front of you as well as your cancelled check or credit card statement if you are having problems with payment.

If you are moving, please give us both your old address and your new address.

BARCODE PRODUCTS For LAPTOPS, PC's & TERMINALS

● **BARCODE ROM FOR TANDY 100 and 102**
Scans, Prints, File Manager, Utilities, Calculator, and more. Six scanning-applications—built in. Use it as an extension of your desktop PC system for FAST, easy portable data-collection, database, and other tasks.

● **BARCODE SCANNERS FOR TANDY, NEC, AND MOST OTHER LAPTOPS**
From low cost, low power, hand-held LED pistol-grip types, rugged stainless-steel wands, I-R Lasers, and CCD readers, to the latest moving-beam Laser-diode scanners. We can interface them all!

● **BARCODE SCANNERS & INTERFACES FOR PC's, AND TERMINALS**
Hand-held and fixed-mount types, with either internal or external decoder and interface. Lets you connect straight from the scanner to the PC, terminal, P-O-S terminal, or smart cash register, via RS-232C, OCIA, PC keyboard wedge, wand-emulation, and others.

● **BARCODE PRINT-GENERATORS**
For EPSON, TANDY, H-P LASERJET, and true compatibles. Supports all major Barcode types.

For more information, please contact:

OPTICAL DATA SYSTEMS Inc.
P.O. Box 1987, Escondido, CA 92025
Tel: (619) 745-6563 Pacific Time

Circle 190 on reader service card.

Continued from page 6.

zine's title would suggest, you would be best prepared to batten down and expect to hold only a small share of the marketplace. I suspect that some of the reasons you don't have every Model 100 user as a subscriber varies widely. Some that come to my mind are:

1) Lack of useful articles and programs. Many of the programs either conflict with the "big-hitters," like *Super ROM*, or are better provided by the ROM chip programs. Some are so specialized they are purely educational reading, with no practical use for the multitude of average users.
2) Quality of photography and paper. In all fairness, the quality has improved measurably since I subscribed a year ago. *PCM*, it ain't! Still, a worthy improvement. Now, if you could only get more photos, and more importantly, more photos that print clearly!
3) Lack of interest. Do you know anyone who shares an interest of yours, but isn't as intense about it? That describes 80% of computer users in this country! A lot of people use their "thing" to get some work done, and then put it away. A means to an end. A tool. These people won't subscribe to your magazine just as Mr. Winter suggests. Unfortunate, but true for all special interest magazines.
4) Too specialized in topic. You have made great strides in trying to introduce MS-DOS Tandy systems. However, it appears that you are at a crossroad and are indecisive as to whether to cross. Should you venture into the realm of non-Model 100 or not?
5) The unit itself. The Model 100 reminds me of brussels sprouts. They're good for you, but you either like them a lot, or you don't like them at all! The Model 100's idiosyncrocies can drive a man insane.

As I said in my opening paragraph, I wasn't going to make anyone happy with my observations and opinions. Putting biases aside, how do you make the Model 100 more than what it really is? Are there any vendors willing to either redesign the unit or come up with new peripherals? Is it already too late and this is an academic argument? I don't believe anyone can justify new tooling or products for the Model 100. Unless the obsessive prices for the available peripherals drop drastically in price, I see not only no future for the Model 100, but also a slow and agonizing death. This would be a sad shame.

Paul M. Bucalo
Norwich, NY

Sorry to hear you had so much trouble with your Model 100. Many people have worse problems with their MS-DOS machines, especially software that requires more than their computer can provide, such as five megabytes of disk space for Word Perfect. *(Won't exactly fit on a dual drive floppy machine, will it?)*

We never said we were hesitant about adding MS-DOS coverage. When we originally took over the magazine, we intended to cover only Model 100 related topics. Unfortunately, there simply isn't enough of an advertiser base to keep the magazine in operation. So, we added Tandy MS-DOS portables to our coverage. With their advertising we can sustain the publication and support the Model 100 readers. Not as much of each issue is about the Model 100, but then again, the magazine is bigger. Total number of pages going to Model 100 topics has remained the same.

As for your other observations, I have known for years that only deeply interested people subscribe to computer publications. How else do you explain the fact that all computer magazines combined have fewer than three million readers while the computer industry has produced over 80 million machines? I liken the situation to the car magazines. Millions of drivers, but only a small number subscribe to Car & Driver. *Thanks for writing.* -tk

USE YOUR DESKTOP COMPUTER AS A DISK DRIVE FOR YOUR M-100.

New — IBM, MS-DOS version works over the phone!

Disk+

on Snap-In™ ROM

NOW AVAILABLE ON M-200

Try *Disk*+ for 30 days. If you aren't as excited as we are, return it for a full refund.

When we designed *Disk*+ we did it out of necessity. We wanted a way that we could just connect a Model 100 to our desktop computer with a cable and save files onto the desktop's disk drive. We wanted it to be so simple to use it would be self-explanatory.

Picture this. *Disk*+ comes to you on a Snap-in ROM and a diskette for your desktop. You take a quarter and open the little compartment on the back of your Model 100. Then you just press the ROM into the socket. *Disk*+ appears on your main menu just like a built-in.

You connect your Model 100 to your other computer using an RS232 cable (available from TMNE for only $20).

You just place the *Disk*+ diskette into the desktop's drive and turn on the computer. It powers up automatically and says "awaiting command" on your desktop's screen. Then you just put the widebar cursor on the Model 100 main menu on *Disk*+ and press ENTER. You are shown your RAM files arranged just like the main menu.

To save a file to your other system's disk drive, you just move the widebar cursor to the file you want to save and press ENTER. It is saved instantly with no further action.

To look at the disk directory, you just press a function key on your Model 100. You see immediately the disk directory on your Model 100 screen, and it is arranged just like your Model 100's main menu.

To load a file from the diskette to your Model 100, you just move the widebar cursor to the file and press ENTER. The file is transferred to your Model 100's RAM instantly. You can press F8 and go back to the main menu, and the file you loaded from diskette is there, ready to use.

It is so nice to be able to keep your documents, programs (both BASIC and machine code) and *Lucid* spreadsheet files on the diskette, and bring them back when you need them. All files are ready to run or use with no changes or protocol by you.

If you have access to a desktop computer and don't have *Disk*+, then evidently we have done a poor job telling you about it.

All files and programs that you load or save, go over and come back exactly as they are supposed to be because of full error checking. This guaranteed integrity is really a comfort. *Disk*+ is wonderful in so many other ways. For example, you can do a "save all" of all your RAM files with just a touch of a function key. That group of files is saved on the diskette under a single filename with a .SD (for subdirectory) extension. Any time you want, you can bring back all those files at once, or just one or two if you like, again with one-button ease.

Disk+ takes up no RAM. That's zero bytes either for storing the program or for operating overhead.

What really excites most *Disk*+ users is text file cross compatibility. Your Model 100's text files are usable on your desktop computer, and your desktop's text files become Model 100 text files.

This means you can write something on your Model 100, and with *Disk*+ transfer it instantly to your desktop and start using it right away on your bigger computer. Or the way we like to work is to type in a document on the desktop computer and then transfer it to our Model 100 with *Disk*+. Then we print out the document, beautifully formatted, using WRITE ROM.

Disk+ works with just about every micro sold, from IBM PC and its clones, to all Radio Shack computers (yes, all), to Apple II, Kaypro, Epson and most CPM. Just ask us. More than likely, your computer is supported.

Incidentally, hundreds of Model 100 owners have gone to their Radio Shack stores and bought a color computer because it is so low priced, and with *Disk*+ they have an inexpensive disk drive.

And if that weren't enough, how about this: *Disk*+ also provides cross-compatibility between different computers like IBM, Apple or the Model 4 using the Model 100 as the intermediary device. Quite a feature!

The snap-in ROM is really great because you can use other ROMs like *Lucid* or WRITE ROM. They snap in and out as easily as an Atari game cartridge and you never lose your files in RAM.

Anyone who ever uses *Disk*+ simply can't do without it. But so many times we have had new users call us and say, "Wow! I had no idea when I ordered it that *Disk*+ would be so fantastic. I just couldn't believe that I could use my desktop computer's disk drive with my Model 100 just like it is another main menu."

That's why we sell *Disk*+ on a thirty-day trial. If you aren't completely satisfied, return it within thirty days for a full refund. Priced at $149.95 on Snap-in ROM. MasterCard, Visa or COD.

1-603-924-8663

Distributed by:

Tri-Mike Network East

P.O. Box 372, Peterborough, NH 03458

Please add $5.00 shipping and handling charge to your order.

Circle 73 on reader service card.

Another fine product from the innovative people at PCSG!

COMPATIBILITY: Tandy 100, 102, 200, and MS-DOS computers.

The Difference Betwixt *BASIC* Interpreters, Compilers, and Translators

Small differences make a big change in results.

by Jake Commander

This column inaugurates a series of encore presentations from the dawn of Portable 100 magazine. The information is still timely and interesting. So relax and enjoy this golden oldie, written by one of the true computer geniuses of our time.

The Model 100, amongst its innards,contains a *BASIC* interpreter. To me and presumably many other people, this is the single most powerful application provided in ROM.

But was using an interpreted language the wisest choice? What are the advantages with, say, a compiler? Could a compiler have been provided instead? And what the heck is the difference between a compiler, an interpreter, and a translator? In this article I'll be presenting a picture which hopefully will clear up the confusion.

INTERPRETERS

An interpreter is a computer program. Its sole function is to scan instructions, usually in the form of ASCII text, and take action according to each one. This process is inherently slow because the interpreter has to lexically scan the text and try to make sense of it piece-by-piece. It does this by expecting the programmer to use a certain syntax containing the equivalent of nouns and verbs or subjects and objects

This process involves scanning its internal dictionary to see if a word is in its vocabulary, and then jumping to a predetermined routine to do some work. If the syntax is wrong, the interpreter has no way of knowing what to do. So it does the only thing it knows: Stops dead with an error report.

This process continues all the time with the interpreter following the code like a train running along tracks and switching when told to do so. The form of syntax its follows comprises the language used (*BASIC*, in the case of the Model 100).

STRAIGHTFORWARD

Although an interpreter's main drawback is its slowness, the good thing about it is its high degree of interaction with the user. Since the routines following the interpretation already exists in a debugged form in ROM, the only crashes that can occur can be handled in a user-friendly manner.

Not only that, but the error report can be generated in the program at the exact point the error occurs. This helps debugging greatly by leaving an ailing program in the state it was just prior to the bug, Thus, it's a direct process to trace the flow of code to see what went wrong and where.

COMPILERS

The difference between compilers and interpreters is compilers and interpreters is compilers read the text of the program. Instead of executing the program, as the interpreter does, it generates code (normally machine code). This code can be run independent of the compiler.

That's the theory anyway. In real life, the compiler usually leaves some of itself behind. The "some of itself" left behind contains many routines to be used to help the generated code perform its work. I'll contain things like floating point math routines. probably containing all the code for transcendental functions like sine, cosine, and tangent. The whole slew of routines is referred to as a run-time library and is always present in some form or another when the compiled object code is produced.

This explains one of the drawbacks of compilers: The machine-code program produced can be larger than the source code text because of the size of the run-time library. Not only that, but some vendors of compilers require a royalty on any object code you sell because it contains a great deal of their own code. Why this should be treated any differently from similar routines present in an interpreter is a mystery.

DRAWBACKS

The obvious advantage of a compiler is speed of execution. Most generate a machine-code program as their output resulting in code running at machine-code speed with no interpreter having to scan and analyze anything.

One caveat to this, thought, is no compiler is capable of producing code as compact and efficient as a human programmer can. Machine-code programmers' jobs are still safe despite the attraction of generating machine code with a compiler.

There's another disadvantage with a compiler. Instead of executing code with simple run command, or equivalent, a two-stage process has to start.

RISKY RUN

First, the compiler has to read the source code in order to generate the object code. This is the stage when any syntax errors will be reported. Depending on the type of error, the compiler may continue producing object code after giving a warning, or it may abort altogether rather than produce code which won't work.

Continued on page 28.

COMPATIBILITY: Tandy 100, 102 computers.

Poking Into *TELCOM* And *BASIC*

Modifying TELCOM *and* BASIC *to make them friendlier. Plus, recovering data lost in a cold-start.*

by Terry Kepner

TELCOM has been criticized because it doesn't automatically send a linefeed character with each carriage return character it transmits. This causes the receiving computer to display each line on top of the previous line, making them difficult, if not impossible, to read. This is especially true of files you want read by other word processors or line editors.

This *POKE* will cure that complaint and force *TELCOM* to include a linefeed character with each carriage return it transmits. To implement the *POKE*, go into Model 100 *BASIC* and type *POKE 63066,1*.

To remove the automatic carriage return/linefeed combination, type *POKE 63066,0* in *BASIC*.

Another useful *TELCOM* alteration lets you get a list of the files currently in RAM. This *POKE* makes either the *F6* or *F7* function keys act like the *F1* button does in *BASIC*: it prints a list of the RAM files on the display (this list is not sent out to the other computer while you are in *TELCOM*; it is displayed only on your LCD). If you want to use the *F6* key go into *BASIC* and type *POKE 64268,58 :POKE 64269,31*. If you want to use the *F7* key type *POKE 64270,58: POKE 64271,31*.

When you select this function while in *TELCOM*, the cursor will display the filenames, then drop to the next line and wait for you or the other computer to type something. This presents the files in a clean format.

Hand-in-hand with this modification is one that tells you how much free RAM (Random Access Read/Write Memory) you have left for downloading information from the other computer. Like the previous alteration, you can assign this function to either the *F6* or *F7* function keys. While in *BASIC* type *POKE 64268,172: POKE 64269,126*. If you want to use the *F7* key instead of the *F6* key, type *POKE 64270,172:POKE 64271,126*.

While in *TELCOM*, the cursor will display the filenames, then drop to the next line

Unlike the previous alteration, this one doesn't automatically position the cursor on the next line after displaying the number of free bytes. Anything you type, or any data sent by the other computer, will start immediately after and on the same line as the byte count information.

Yet another *TELCOM* alteration will let you assign a "clear screen" routine to either the *F6* or *F7* key. With this function in place, pressing the function key will clear the *TELCOM* screen and place the cursor in the upper-left corner of it. This is handy if you want to get rid of confusing information before continuing with your next communication task.

To use the *F6* key go to *BASIC* and type *POKE 64268,49:POKE 64269,66*. If you want to use the *F7* key type *POKE 64270,49:POKE 64271,66*.

As you may have noticed, there are only two available function keys in *TELCOM* while there are three possible alterations. I've found a way to combine several features into only two function keys: *F6* and *F7*. Previously you had to choose two of these three possibilities: a clear screen, a files display, or a free RAM count—and without removing any RAM from normal program use.

This little two-line *BASIC* program assigns the "clear screen" command to the *TELCOM F6* function key, and combines the files display and free RAM count into one *TELCOM* function key: *F7*.

Sardine: The only electronic dictionary for Model 100/102/200/NEC8201 computers. Contains the 33,000 word Random House Pocket Dictionary.

Process over 13,000 words per minute. Look up a single word in seconds or check a 25K document in less than three minutes. Corrections are inserted automatically. Create you own auxiliary dictionary of special terms, words, names, or abbreviations. Traveling Software originated Sardine years ago. It went away but now it's back. Don't miss out ... get your copy today.

ROM version includes both T-Word, the famous word processing program, Sardine, plus 7,000 of the most frequently used business words. Disk version works with the Ultimate ROM II or stand alone. All versions require a TPDD or TPDD2. Sardine ROM 49.95 or disk $39.95 (s&h $3)

P.O. Box 23438, Pleasant Hill, CA 94523-0438
510/932-8856 voice, 937-5039 fax, 939-1246 bbs

Circle 33 on reader service card.

As a plus—instead of leaving the cursor at the end of the free RAM count, as the previous *POKE*s did—this program's *POKE*s fix *TELCOM* so the cursor remains on the line below the free RAM count. This makes for a cleaner and more legible display as you continue telecommunicating.

The program works by taking advantage of the fact that each of *BASIC*'s function keys is allocated 16 bytes of RAM, no matter how much you actually use. Well, *BASIC* function key *F8* is assigned the command *MENU*. Pressing this while in *BASIC* will return you to the Model 100 main menu. This command uses only five bytes of the sixteen allocated (the fifth byte is a carriage-return that terminates the *MENU* command), leaving eleven bytes, which just so happens to be one byte longer than I need for my *TELCOM* modification. My program defines the *BASIC F8* key as the command *MENU* followed by a character string that includes the machine-code for calling the *FILES* function, determining the free RAM and then sending a carriage-return/linefeed to the display. This is followed by the *POKE* commands that tell *TELCOM* where to find this code in memory.

The second line of the program sets the *TELCOM F6* key to perform a clear screen.

For you techie types, 205 is the machine-code equivalent of a call, and 201 is a machine code return. The other numbers in line 10 are the addresses called (in standard low-byte high-byte order). You'll note that there are three calls. The return, 201, sends control back to *TELCOM*. Otherwise the program would cause your computer to crash, and possibly force you to cold-start it and lose all your programs.

Naturally, if you cold-start your computer, or use a program that changes the assignments of the *BASIC* function keys, you will lose the *F8* key code my program put there. If you try to use the *TELCOM F7* key after this has happened, you might crash your computer as it tries to execute the non-existent code in *BASIC* key *F8*.

I suggest that you type in the program, run it, then save it to cassette so you can easily reload it in the event the *BASIC F8* key is reassigned.

You'll note that there are three calls.

```
10 KEY8,"Menu"+ CHR$(13)
+ CHR$(205) + CHR$(58) +
CHR$(31) + CHR$(205) +
CHR$(172) + CHR$(126) +
CHR$(205) + CHR$(34) +
CHR$(66)+ CHR$(201): POKE
64270,127: POKE 64271,248
11 Rem set TELCOM F7 key
to display files, display
free ram, and preform a
CR/LF
12 POKE 64268,49: POKE
64269,66
13 rem set the TELCOM F6
key to perform a clear-
screen command.
```

BASIC MODIFICATIONS

Occasionally you'll want to protect a program from accidental "lockup" (such as pressing the *PRINT* function key when you don't have a printer attached). The normal way of recovering from this is to press the *BREAK* key. Unfortunately, this crashes your program and could also lose your data—a certainty if you have to re-run the program.

This *POKE* disables the *PRINT* key, and also makes the *BASIC* ignore *LPRINT* statements: in *BASIC* type *POKE 64228,136:POKE 64229,20*. When you are ready to use the printer, just type *POKE 64228,243: POKE 64229,127*.

To make this an automatic operation, you can use this statement to test the printer port for a printer *IF (INP(187) AND 6) < > 2 THEN POKE 64228,136:POKE 64229,20:ELSE POKE 64228,243:POKE 64229,127*.

If *INP(187) AND 6* equals two, the printer is attached and ready to go. If it equals zero the printer is attached but not ready. And if it equals six the printer is not attached.

MORE POKES

Occasionally, if you write your own *BASIC* programs, you yearn for a few simple commands to jazz up your program a bit. But you don't want to add anything long—after all, space IS at a premium in a portable. Here are four suggestions.

Here is a *POKE* that lets you turn on the reverse video characteristics of the Model 100 LCD display: *POKE 63048,1*. Restoring the display to normal is just as easy: *POKE 63048,0*. The first *POKE* takes the same amount of room as the standard method of enabling reverse video: *PRINTCHR$(27)"p";*. But the second *POKE* is actually shorter than the normal method of turning it off. Both are slightly faster than their *PRINT* equivalents. No matter which method you use, returning to *MENU* turns off the reverse video.

Another feature you might want to consider is the *LABEL* line which you can turn on and off with either the *LABEL* function key or the *SCREEN* command: *SCREEN,1* turns it on and *SCREEN,0* turns it back off. Occasionally you will design a program that pressing *LABEL* will ruin. Here is a *POKE* to prevent a user from pressing the *LABEL* key to turn the label line back on: *POKE 64173,0*. After this *POKE* is issued,

TANDY WP-2 MEMORY

128K $54
32K $12

Improve your memory! Add a 32K or 128K ram disk to your WP-2. The 32K part is exactly the same as Tandy's at a significantly lower price. The 128K part has the same low-power characteristics of the 32K part. Battery life is not a problem! Prices include S&H, installation instructions, 90-day warranty. CA residents add 7.75% tax. Send check or money order to:

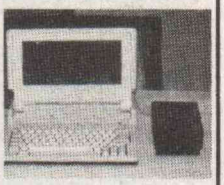
VISA

MicroMime
P.O. Box 28181
Santa Ana, CA 92799
CIS 70346,1267 Phone/Fax (714) 545-1765

Circle 37 on reader service card.

AFFORDABLE HARD DRIVES FOR YOUR LAPTOP

THE QUICKBRICK ... connects directly to the expansion bus, providing the best performance among all external drives.



Toshiba, Tandy, IBM Convertible, NEC, Sharp, Kaypro, Dataview, Zenith - *You name it!*

Now Only $395 /20 MB.

Systems Peripherals Consultants
7950 Silverton Ave., #107
San Diego, CA 92126
619/693-8611

Circle 18 on reader service card.

pressing the *LABEL* key will have no effect. If the label line is on, it will stay on. If it is off, it will stay off. To restore the *LABEL* key's access to *LABEL* line, type *POKE 64173,1*.

As with the reverse-video *POKE*, returning to the *MENU* from *BASIC* will automatically restore the *LABEL* key's function.

Frequently, when you are trying to design a menu screen for the LCD, you want to know just where the cursor is before you let the program start sending information to display. *PEEK(63040)* will tell you the current line that the cursor is sitting on, and *PEEK(63041)* will tell you the horizontal print column occupied by the cursor.

Here are two locations that will tell you where the information you want to display is going to end up on the LCD: *PEEK(63033)* will tell you the next line to be used on the display (one is the top line, eight is the bottom line); and *PEEK(63034)* will tell you the next horizontal print position, or column, that will be used (starting with column one on the left and running to column 40 on the right).

Associated with these two positions in memory are two others that programmers can have a lot of fun using. The first, 63035, can be used to protect the bottom lines of the LCD from the cursor. For example, *POKE 63035,4* will prevent the cursor from going below the fourth line of the display. In other words, you could put information on line seven of the LCD and use this poke to prevent it from being overwritten as the screen fills up.

Similarly, you can protect the right side of the display from being used by typing *POKE 63036,20*, effectively reducing your display size to eight lines by 20 columns! As with the other *POKE*s in this column, returning to *MENU* resets them to their normal values (eight and 40, respectively).

NOT SO RANDOM

As you may know, the random number generator in the Model 100 always starts with the same number (that is, typing *PRINT RND(1)* always gives the number .59521943994623 the first time, .10658628050158 the second time, and so forth). If you've written games for the Model 100 that use this function, or if you need the function for numerical analysis, the fact that you always start with and keep the same numerical progression is a frustrating fact. Here are some suggestions to solve that problem.

The most obvious method is to use the *INKEY$* function in a loop, continuously calling the *RND* function until the user presses a key. The amount of time it takes the user to react to the prompt *Press any key to continue* will be a random factor, preventing the user from starting with the same sequence more than once. Here is an example:

```
10 PRINT"PRESS ANY KEY TO
CONTINUE":A+RND(1) :A$=INKEY$
:IF A$=""THEN 10
```

The problem with this technique appears when the person using the program takes advantage of the fact that the Model 100 will store keystrokes before they are used. For example, if a program has this *INKEY$* routine as the first line, the user could type *RUN* and hit *ENTER* twice, rapidly. The first *ENTER* would start execution of the program; the second one would be stored in the keyboard buffer. When the *INKEY$* loop is reached, the previously stored *ENTER* is immediately given to the *INKEY$* command and the program continues after calling the *RND* function only once. A clever user can then start with the same numerical sequence. This technique is still useful in some situations.

Better and faster results can be obtained by just inserting *POKE 64634,PEEK (63791)* into your program. This will start the random number generator with one of 125 values.

A much better approach, for those situations requiring higher odds, is to go directly to the random number seed at locations 64634-64639 and fill them with a series of numbers that are themselves a random set, or at least will appear to be random.

One way to do that is to read the current date and time from the computer's memory and put them into the random number seed locations. Because the clock is always ticking and time continuously moves forward, the only way to get the same sequence twice would be to set the date and time functions to a predetermined value, and immediately call the program that transfers this information to the random number seed—which means your user would have to stop your program, set the date and time, then continue the program from where it was interrupted.

Putting the time and date into the random number seed locations will give roughly 31,536,000 different starting numbers, one for every second in the year. It's easy to do once you know the locations in memory of

Reconditioned Laptop Sale!

Model 100.....$199.
Chipmunk Drive 400k drive.....189.
Tandy 100k drive.....79.
Epson NB3 w/20 meg.....1899.
Zenith SuperSport w/20 meg...795.
Zenith SuperSport 2-floppy.....595.
Zenith MiniSport.....595.

Buy-Sell-Trade Laptops

All of our reconditioned computers come with a 30-day "no-hassle" money-back guarantee!

Shreve Systems

3804 Karen Lane Bossier City, La. 71112
FAX 318-742-2799

800-227-3971 Call for Catalog!

Circle 20 on reader service card.

WEETAX™ The Weekly Tax Program

For periodic maintenance of input to your personal income tax return.

- table-driven panel fields
- your labels and default data
- optional, prompted annotation
- year-to-date summary printout
- resets to start next year
- only 377 bytes reside in RAM
- standardizes format
- promotes time management
- provides current accounting
- avoids the year-end crisis
- keeps you in control

DVI: $44.95 ppd | PDD: $49.95 ppd for Ultrasoft Disk Power™ 100

Reviewed in March 1989 "Portable 100."

Software Versand, Points West No. 158
3131 W. Cochise Dr.,-Phoenix, AZ 85051
Phone: 602-997-1523 © 1989 TMO

Circle 128 on readers service card.

the time and date. Here's a one-liner that does just that:

```
FOR A=0 TO 4 :POKE A + 64634,
PEEK (A*2 + 63795) + PEEK (A*2
+ 63799)
```

Hopefully, these suggestions will make it easier for you to design efficient and fast programs for your Model 100.

DATA RECOVERY

You sit there stunned. All your programs, all that data is gone. Erased. Poof. It happens when you least expect it—usually when you are trying a new machine-language program for your Tandy. Suddenly, for no apparent reason, the unit resets itself to its original power-on state. That is, the date resets to Jan 1, 1900, and the menu indicates you have no files in memory at all.

Or do you?

It turns out that your computer really hasn't forgotten everything. It just reset to zero certain pointers in the menu area of RAM that tell it where your data was. Now, if you could somehow go into RAM without disturbing anything there and reset those pointers, you could get back your previous data without having to re-key it back into the computer.

You can recover that data. The technique takes advantage of the unusual memory structure of the Tandy Model T and the ability of *BASIC* to treat RAM as just another peripheral to which to send data.

As you type in a command to *BASIC*, the operating system stores what you type in a keyboard buffer in high RAM. When you press *ENTER*, the operating system looks at what you typed and decides if it is a direct command or a program line (program lines start with numbers). If it is a program line, it is stored in RAM at the lowest available address, erasing what was there previously.

If, on the other hand, it is a command, then the line is transferred to an execution buffer and executed without disturbing low RAM (except as the command instructs).

Your computer really hasn't forgotten everything.

This makes possible a one-line save-your-soul program that can read the RAM of your 32K Model 100/102 (if you have a 24K machine, use X=40962) and restore it, byte by byte:

```
OPEN "FIND" FOR OUTPUT AS 1
: FOR X = 32770 TO HIMEM :
PRINT#1, CHR$ (PEEK(X)); :
NEXT
```

This program *PEEK*s at each RAM location, reads the information stored there, and writes that piece of data on top of itself, updating the relevant memory pointers as it does so.

In the Kyocera computers, RAM starts at the memory position and goes up to a maximum of 65535. For the Tandy 100, there is a pointer called *HIMEM* that tells the computer just how much RAM is installed in the computer.

If you have a full memory machine, the start memory address you use depends on which machine you have. A 32K Tandy 100 or Tandy 102 starts at 32767. A 24K Tandy 100 or 102 starts at 40959.

Now, after running this program, you will have one huge file named *FIND.DO* that is as large as all the RAM available in your computer. Because the files you are trying to recover didn't take up all the RAM in your computer, this file has a lot of useless information at its end that you can erase. This will give you room to transfer data out of the *FIND* file. So, go into the file, go to the very end of it, and start erasing the useless information.

You will discover that your *BASIC* programs can't be recovered without a lot of work. *BASIC* programs are stored in memory in a shorthand that can't be merged back into *BASIC* from a document file. But your document files should be easily available for your use.

Finally, if you have a tape recorder and want a record, you can save the *FIND* file to tape by typing (if you have a 24K machine, use X=40962):

```
OPEN "CAS:FIND" FOR OUTPUT
AS 1 : FOR X + 32770 TO HIMEM
: PRINT#1, CHR$ (PEEK(X)); :
NEXT
```

This allows you to peruse your files in RAM, reassured that if you make a mistake in the recovery you can reload the file from tape and try again.

COMPATIBILITY: All computers.

Power Star to Keep in Your Car

Keeping your battery charged while on the road makes your portable computer a traveling workhorse.

by Bob Liddil

It was a dark and stormy night. The DC power cord had been left at home. The butler, riding shotgun with *Automap* loaded onto his trusty Tandy 2820 HD, had just realized that (A) the on-board batteries were flatter than old ginger ale, (B) we had no paper backup maps, and (C) we were about to run out of gas and had no idea how far away the next town might be. There we were, entering the mountaintop village of Florida, Massachusetts, in a downpour of sleet, snow, ice, and frozen frogs, with no way to access the computer, when suddenly, it dawned on me. Back at the office, prior to this ill-fated trip, a really nifty gadget had come by UPS. A Powerstar Products Incorporated POW 200 had arrived, courtesy of Solarmetrics, in Manchester, NH. By a small stroke of luck, Terry had shoved it into my computer case, mumbling something about, "See if you can find a way to test this, wouldja?" Oh my, yes, indeed I would.

The Powerstar POW 200 is a DC to AC inverter. Simply put, it converts the DC power coming from your car battery to the AC that you would normally in your house. My particular test inverter was the 200 watt version, which happens to be more than enough to drive the 2820, hard drive and all.

It is a compact device, a mere 5 inches by 2.6 inches by 1.7 inches (roughly the size of a microcassette tape recorder), with a cigarette lighter pigtail on one end and a three-pronged socket on the other. It weighs less than a pound. Basically, it is an unobtrusive little black box that remains pretty much invisible until you need it. But when you need it, oh boy.

From an input of 10 to 15VDC, the PowerStar has a capacity of 140 continuous volts of AC with 400 watts peak and 200 for two minutes, an easy loaf for the roughly 47 watts of draw from the computer. It outputs 115 volts AC true RMS (plus or minus 5 percent). To put all this technosnarfle into English, a-13 inch color TV (which draws about the same power as one headlight) can operate about six hours from the car battery without the motor running. The 2820 HD computer would last approximately two hours more than that, and a Model 100 would last until the end of the car's warranty (or thereabouts).

In the snow, sleet, etc., running lights, wipers, defroster, heater, radio and PowerStar (as we climbed the last hill into Florida and started downward toward North Adams (which *Automap* said would be at the foot of the hill), the reassuring blue display on the navigation computer contrasted sharply with the sight of cars and trucks off the road. By the time we got off that mountain, the PowerStar had done a fair job of reaffirming my faith in electronic devices and power inverters in particular. As we pulled into an open CITGO station for gas, I whispered a silent "Thank you" to Earl Farley from Solarmetrics.

An expanded use for this unit would be employing a strictly AC powered device, such as a Weltec Multimate hard disk drive, in an environment such as a sailboat or motorhome. Or it could just as easily drive a CD ROM reader and an extra monitor, just by asking. Overload it and it shuts down, resets and tries again. It has the guts to take on odd challenges and please its user easily.

Anyone using recreational vehicles of any kind, whether boat or land vehicle, can find room for this useful and compact little power box. Also, the computer

doesn't seem to pick up as much motor static when using the inverter, and that's reason enough for it's use.

When I got home that dark and stormy night, after dropping off the navigator, then putting away the car, I remembered that I'd left the PowerStar attached to the lighter socket in the Camaro. When I went back out into the muck to retrieve it, I found it was gone. Stolen? Oh no! How could this be? Dejectedly, I went back into the house only to find it laying on the dining room table with a note attached, requesting to borrow it for next week's vacation. How did it get there? Who was the mysterious borrower that seemed to know all about how to use it?

It was the butler. The butler did it.

MANUFACTURER'S SPECIFICATIONS

PowerStar Model POW200 — $129
manufacturered by PowerStar Products Incorporated

Distributed by
SOLARMETRICS
140 Bouchard Street
Manchester, NH 03103
Phone (800) 356-4751
(603) 668-3216

COMPATIBILITY: MS-DOS computers.

DOS For Dummies: A Book for Users, Not Hackers

This book helps you cut down on DOS MS-takes

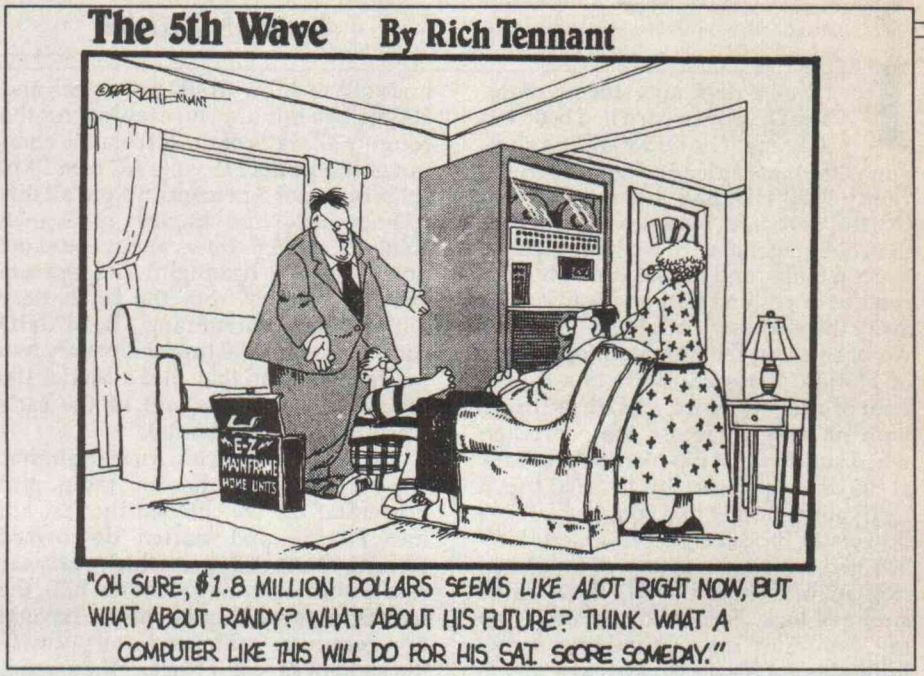
by Bob Liddil

An old computer cartoon reads: "C:Dos, C:DOS RUN, RUN DOS RUN!" From that cartoon, one might get the mistaken idea that the disk operating system that made Bill Gates a zillionaire and Microsoft a Fortune 500 company is easy to use. It isn't. But, with Dan Gookin's new book *DOS For Dummies* permanently in place on your desk, it can be.

This is one of those rare techno-books where you literally can't wait to turn the page. The author starts off with his tongue firmly planted in his cheek and keeps the reader laughing all the way. At the same time, he never loses sight of the real reason the reader is here, and that is to learn DOS.

A variety of topics are covered, from seemingly uncomplicated tasks (to the experienced user) such as turning the machine on, running a program, finding a directory, changing disks or disk drives, all the way through and including such dramatic revelations as, "Never use the DOS commands: ctty, debug, Fdisk, Format C:, and recover."

Although the author does not answer the question of life, the universe and everything, he does make the imponderable mysteries of DOS seem a little less galactic. Before reading this book, I always felt that understanding DOS was an infinite improbability. However, the author has offered explanations on how to find lost files, returning to your program when it crashes, how to avoid rebooting and losing your files when your computer goes catatonic. Many of the translations of DOS are worthy of a Babel Fish. Armed with this information, I am possessed of a new attitude, "Don't Panic." Of course, *DOS For Dummies* has an entire section entitled, "when to panic."



Seriously, and on one level this is an entirely serious book, *DOS for Dummies* is crammed with useful tidbits. For example, from Chapter 15, " When It's Time to Toss in the Towel," subheaded, "My computer's down and I can't get it up", comes the sage advice, "The first step is to analyze the problem. Break everything down and find out what is working. Even if you can't fix the problem, you'll be better prepared to tell an expert about it and have them deal with it." This is a much better way of dealing with computer crashes than my previous method which was the "pound on the table, swear like a sailor, evoke the curses of the old ones on the manufacturers of the equipment, then roll into a fetal ball and cry for your mommy" method. This chapter suggests checking cables for loose connections, (particularly those hard working keyboard cable connectors), going down a checklist of symptoms in hopes of eliminating the obvious, and differentiating between hardware and software problems. It addresses the gut wrenching events surrounding a hard disk disappearance (as in, it was here and now it's gone. Not an uncommon occurrence). I never would have guessed that all IBM compatible computers have a built-in battery, never mind that an internal battery failure could cause the computer to forget where the hard drive is. Egad! According to this chapter, the age of a hard drive can also be a factor in having it suddenly disappear. In our enthusiasm for things technological, we sometimes forget that what spins, clicks, stops and goes, sometimes wears out. Recommendation: re-

Continued on page 28.

What on Earth could they be thinking?

by Terry Kepner

I must admit, it's been a long time since I enjoyed such a good laugh after opening a software package. I had ordered it several months ago, from a prerelease promotional flyer I had received. It was pushed as the most extensive dictionary/thesaurus program on the market, with over 160,000 words in the dictionary program and 220,000 words in the thesaurus. These are rather impressive statistics, and I wondered how it would compare with the built-in dictionaries/thesauri of the word processors now on the market.

So, when it arrived the day before I left on Christmas vacation — to visit my wife's relatives in upper state New York, only fifteen miles south of the Canadian border — I was pleasantly surprised and looked forward to actually having some time to examine the package.

It came in a standard six by nine by two-inch mailing box, with the Random House logo on the front. I stared, stunned, at the contents after slicing open the sealing tape. Inside, in a plastic, heat-sealed bag, was a small five by seven booklet, not more than fifty pages thick, and *sixteen* 3.5-inch disks. That's right, *sixteen* 3.5-inch disks. That's when I started laughing.

Just what on Earth was on those disks? I mean, even *Windows 3.0*, with all the bells and whistles added, doesn't have even have *half* that many disks. Not even the database programs, known for extravagant quantities of disks, require that many disks. In fact, the previous record for ridiculously excessive distribution disks was held by *Unix*, that massive operating system that came on forty or fifty 360K 5.25-inch disks, in uncompressed file format back in the early 1980's.

I recounted the disks, several times, and still came out with sixteen disks. I decided to check the manual; just how much disk space did this monster take up? The absurdity of it kept me chuckling throughout my search.

Nowhere in all forty-eight pages does it tell you how much disk space is needed, although it proudly proclaims that it is a small TSR (Terminate and Stay Resident) program that requires only 10K of your valuable RAM! I came across this message several times.

I kept looking. Included with the package was a new set of promotional press releases. Buried on the back page of one of these, after yet another "Using only 10K of RAM..." was a sentence that said, "The 9.6 Megabytes hard drive file..."

Nowhere in all forty-eight pages does it tell you how much disk space is needed

Nine decimal six megabytes, 9.6 MB.

People were staring at me as I roared out loud, laughing.

I showed the package to everyone else in the office. Stunned looks of disbelief, followed by howls of laughter. I showed it to the people in the mailing list business next door. More laughter. One woman said she used to work at NCR with *Unix*, and had thought nothing could possibly take up more space than that. As a matter of fact, our mailing list for the magazine is only six megabytes in size.

According to a portable computer magazine that shall remain nameless in these pages, out of the 104 hard-drive equipped portable computers on the market, sixty-six come with twenty megabyte hard drives standard, and one hundred come with forty megabyte units. The high-performance units that come with sixty megabytes or more number fewer than ten.

I have *Bible Study* on hand. It provides the entire text of the Old and New Testaments in one and ahalf megabytes. The King James Version, The New International Version, and the American Standard Version, all together take only four and a half megabytes! Three different versions of the Bible, a complete concordance, and the Naves Topical Index still brings the total to less than six megabytes.

Let's see now . . . *Microsoft Word 5* requires two megabytes of hard drive space for the complete package (as does *Word Perfect*, *Word Star*, and most every other word processor on the market today), that is, I haven't stripped out the spelling checker or thesaurus and I have kept all the things they say you should.

Add in the operating system for another one and a half megabytes. Now I add in my Writer's Toolkit, with *CorrecText Grammar and Style Checker*, *Concise Columbia Dictionary of Quotations*, and *The Written Word III* (a style book that answers any question you may have on writing in the English language) — I stripped out the dictionary, abbreviation guide, and thesaurus — and that adds another five megabytes. Now load in this program. Hmmm, that takes up over eighteen megabytes. Ninety percent of my hard drive used up, and I haven't even written a single word yet!

And what about my other programs, not just my word processor utilities? I'm

Continued on page 28.

GOOD MEMORIES

We still make 'em . . . . since 1983

Model 100 8K module	$29
NEC 8201 8K module	$29
Tandy 200 24K module	$59
Tandy 600 96K module	$99
NEC 8201 128K cartridge	$159

NEW SUPER SMALL DESIGN
w/4 banks of 32K RAM.
WP-2 RAM expansion $CALL

Purple Computing
2048 Southside Rd.
Murphy, OR 97533
1-800-732-5012
Visa and MasterCard accepted.

Circle 55 on reader service card.

Multisolutions...$50
Model 200 ROM with database, wordprocessing, appointment calendar & expense tracking

Multiplan...$35
Spreadsheet ROM for model 100

Send check or money order to:
Robert Rice
PO Box 53798
Houston, TX 77052-3798

Add $3 postage & handling. Texas residents add 7.25% sales tax. Send for our model 100 & model 200 software catalog.

Circle 151 on reader service card.

ROMBO

At last! An economical adapter that allows you to use stock EPROMs (27C256) in the option ROM socket in the Tandy models 100/102/200. They're reuseable too, no soldering necessary. Remove an EPROM in seconds, reprogram, and reinstall in the same ROMBO. "The best!"

ROMBO: $9 ea . (1-9) $8 ea. (10 up)
27C256 EPROM: $6.50 ea.
plus $3 per order for shipping.

(Need a ROM emulator? See our extRAM ad.)

eme systems
voice: (510) 848-5725
fax: (510) 848-5748
2229 5th St., Berkeley, CA 94710

Circle 81 on reader service card.

Continued from page 27.

going to have to unload my two megabyte subdirectory reserved for my GEnie work. I'm going to have to unload *Automenu* and *Menu Direct Gold* (800K). Out with my *PC-Tools* (two megabytes). Goodbye to my graphics program (four megabytes). And my solitaire! Oh, no, not that, too! It's only 150K, I think I can squeeze it in. But everything else must go!

Actually, I have a forty megabyte hard drive, not a twenty. But I also use the computer with *PageMaker* to put the magazine out. With *PageMaker*, and the other writing tools and utilities I mentioned above, I have less than nine megabytes left on my hard drive, even with a special software drive-squeezer installed. And when running *PageMaker*, trying to limp by with only two or three megabytes free is a real test of patience. The program slows down from slow speed to dead slow speed, emphasis on dead.

The *Random House Dictionary and Thesaurus* is inexpensive, remarkably so, only $69.95. But consider that the average person has a vocabulary of only 30,000 words, that even the most widely read person knows no more than 50,000 words, and that most people use, actually use, only six thousand words on a regular basis.

Does something look wrong with this? Why am I picking up my Model 100 to take on vacation? Why is my 30,000 word pocket dictionary parked in the bag pocket over the Model 100, alongside the pocket thesaurus? And I won't even mention the WP-2 with its 100,000 word dictionary and 220,000 word thesaurus.

Could it be, that less is more?

Continued from page 26.

place the drive when it begins acting up. This is seen as a better course of action than losing data as a result of hard drive cardiac arrest. This book is chock full of neat information like this, information that would be invaluable to know at the same time something really bad happens, or even beforehand.

The bottom line on this 291 page book is an easy call. I like it. I recommend this book for other "DOS dummies" like myself or even "DOS savants" below the level of "Guru." *DOS For Dummies*, as a casual read, is a witty, offtimes sidesplittingly funny, cleverly disguised serious manual on DOS. It addresses the simple or complex with expertise and irreverence in equal doses, balancing the two to make the information palatable. I found this book to be easier to use than DOS manuals I've owned. Those books made me feel like a dummy. This one puts me firmly in control and allows me to drive. The index section in the back pages is crammed with easily accessible stuff I need to know. Owning this book will almost certainly make life with DOS more tolerable. I'm adding it to my permanent library.

MANUFACTURER'S SPECIFICATIONS

DOS For Dummies, by Dan Gookin, 291 pages, ISBN 1-878058-25-8 — $16.95 US, $21.95 Canada

IDG Books Worldwide
International Data Group
155 Bovet Road Suite 610
San Mateo, CA 94402

Continued from page 20.

The source code is dumped back into the lap of the programmer. Once this initial compilation is successfully completed, the second stage can take place. Here the object program is run. Any logic errors in the program will cause a crash at some point. But this time it'll be at machine-code speed with no friendly interpreter to help with a cryptic message. Anything might happen: Wrong results to a system crash.

TRANSLATOR

So what about this mysterious animal? It's just a generic term for any program that converts source code in one language to source code in another: *Pascal* to *Fortran* for example. Its main use is for rewriting programs in a language you intend to supercede. Once the translation is performed, the resultant code can be interpreted or compiled in the usual way.

The uses for such a program on a 100 are minimal. Though there's no reason why the machine couldn't perform any translation if you wanted to translate code for use on another machine .

EASY WAY OUT

So could the 100 designers have gone with a compiler instead of an interpreter? Sure. Except with the wide userbase such a machine has attracted, the more interactive the programming language the better. Despite their drawbacks, interpreters offer the best lowest-common-denominator solution to providing a language on any machine. Good programmers can still make them perform with astonishing efficiency. So regardless of the fact I'd personally enjoy the use of a compiler on my 100, I'm secretly glad they provided the easy way out.

COMPATIBILITY: Model 200.

SEARCH.CO

Uncovering the mysteries of your Model 200's ROM.

by Paul Globman

DEJA VU!! If the name of this column seems familiar, that's okay. We've been here before. Four years ago, beginning with the March '88 issue of *Portable 100*, CUSTOM 200 appeared monthly. The main focus of the column (at that time) was to explore the potential of cross-bank programming in the Tandy 200.

Today, the concept of cross-bank access (i.e., programs in the Tandy 200 having the ability to read from, write to, or switch to another RAM bank) is no longer new and untested. So, for the next couple of issues, this column will focus on some utilities to assist programmers and hackers.

SEARCH.CO

One utility that most programmers find indispensable offers a way to search the ROM (or RAM) for a defined sequence of bytes. *SEARCH.CO* (see Listing 1) finds the locations of a defined byte sequence and displays the addresses where that sequence is found.

To use *SEARCH.CO* you must run a small *BASIC* program that defines the byte sequence. Such a program may be as simple as:

```
1 LOADM"SEARCH"
2 INPUT"Find";X$
3 CALL 63900,,VARPTR(X$)
```

This is fine if the string you are searching for is an ASCII string that can be typed in at the keyboard. But suppose you are looking for all occurrences of *CALL 20353*. Then line 2 would be:

```
2 X$=CHR$(205) + CHR$(20353
MOD 256) + CHR$(20353\256):
REMCHR$     (205)=
CALL(op code)
```

Other variations of line 2 can be used to define the sequence of bytes you want to search for. For example, line 2 could be:

```
2 GOSUB 5
```

where line 5 defines a subroutine to generate *X$* using *DATA* statements or an input loop (end the program on line 4, using, for example, *STOP*).

```
1 '************************
2 '*  SEARCH.CO           *
3 '*    by Paul Globman   *
4 '*  Copyright (c) 1985  *
5 '************************
10 FOR I = 63900 TO 63944
20 READ X:POKE I,X:SM=SM+X
30 NEXT
40 IF SM = 6705 THEN 60
50 PRINT"error in data":STOP
60 SAVEM"SEARCH.CO", 63900,63944
1000 DATA 78,35,235,237,235,33,0
1010 DATA 0,205,62,79,197,213,229
1020 DATA 205,17,110,225,209,193,204
1030 DATA 188,249,35,124,181,194,167
1040 DATA 249,195,62,79,197,213,229
1050 DATA 205,3,71,205,30,0,225
1060 DATA 209,193,201
1070 REM       END OF DATA
```

It is this kind of utility that let me explore the Tandy 200 ROM and uncover the bank-switching routines used in *XOS*.

SEARCH.CO examines all of memory, from address 0 to address 65535, and displays locations of exact matches as in:

in xxxxx in xxxxx in xxxxx

where *xxxxx* is the decimal address of the matched byte sequence.

This is useful for locating text strings in the ROM that you may want your program to display, while keeping the byte count of your program at a minimum. It is exactly this kind of utility that allowed me to explore the Tandy 200 ROM and uncover the bank-switching routines used in *XOS*. Next time I will offer a more extensive programming tool.

Paul can be reached by modem on CompuServe (72227,1661) and GEnie (P.GLOBMAN), or by mail at 9406 N.W. 48th St., Sunrise, FL 33351 (please enclose SASE if you're requesting a reply).

COMPATIBILITY: All MS-DOS computers.

DeskMate Meets *RightWriter*

(Too much jargon!)

by Linda M. Tiernan

Whew! In all the years I've used computers, I've never had a program as easy to install as this, with directions this straightforward. It must be a trick. This can't be a real program.

But it is! *RightWriter*, the grammar and style checker, is published by RightSoft, Inc., of Sarasota, Florida. The *DeskMate* (PC-compatible) version is available from Tandy (Catalog number 25-1300, $79.95). It requires 512K RAM. And—even neater, in my opinion—it includes a "runtime" version, for which you don't need to have *DeskMate* if you have just a plain old MS-DOS computer. Your computer can "pretend" to have *DeskMate* while you're using *RightWriter*!

My computer has a hard disk, so I opened up RightSoft's manual (a sturdy paperback, about 200 pages) to the section on installing the program on a hard disk with *DeskMate*. I followed their simple directions exactly. I put in the 3.5-inch disk on my A drive, hit *F7* and the choice *Install*, and let it talk to me. It showed me a screen that was not the one in the book (because *DeskMate* has updated since the book was printed), but I answered the right questions, and off it went.

I've never had a program as easy to install as this, with directions this straightforward.

A few short moments later, I was pressing any key to continue, and *DESK.PDM* had been added to the list of programs in my *PROGRAMS* box. I chose to display it (via *F7* from my *DeskMate* desktop screen). Because it is already listed as a *DeskMate .PDM* program, I don't need to specify a path or starting commands—*DeskMate* knows better. It recognizes its own.

THE SCREEN

Now *RightWriter* appears on my opening screen as a separate icon—a window display. It "adopted" all the files I currently have in *TEXT*, presumably because they all end in *.DOC*, so all I will have to do is tab to the *RIGHT* box, arrow down to the file I want checked, and hit *ENTER*. You can also simply choose *RIGHT* from the top of the box, and then choose the file you want to check later. (Note: If you delete a file from the *TEXT* box, it also disappears from the *RIGHT* box.)

Right up front, *RightWriter* warns you that it makes suggestions, not

```
                                P.O. Box [redacted]
                                Peterborough, NH 03458
                                October 24, 1991

Ms. [redacted]
School for Lifelong Learning
Elliot Hall, Keene State College
Keene, NH  03431

Dear [redacted]:

    As I mentioned in our telephone conversation, the textbook I wish
to use in next semester's Introduction to Cataloging & Classification
is not the one recommended on the syllabus.<<*_83. LONG SENTENCE: 29
WORDS *>>  (You may have noticed that the syllabus says "Instructor
may choose an alternate text."  That was written with me in mind, I'm
sure.)

    The textbook I wish to use is Introduction to Cataloging and
Classification, 8th ed., by Bohdan S. Wynar.  It will be available the
second week of December.  The paperback edition costs $32.50 retail
and its ISBN is 0-87287-967-4.

    Please order an instructor's copy for me when it is available, and
pass this information on to the bookstore.  The books may be
ordered<<*_81. PASSIVE VOICE: be ordered *>> from the publisher:
Libraries Unlimited, P.O. Box 2988, Englewood CO 80155-3988.  Their
phone number is 1-800-237-6124.

    Thanks for your help!

                                Sincerely,

                                [redacted]

                        <<** SUMMARY **>>

Overall critique for: C:\DESK\CATTEXT.DOC
Output document name: C:\DESK\CATTEXT.out

READABILITY INDEX:  7.96

    4th        6th        8th        10th       12th       14th
     |****|****|****|****|    |    |    |    |    |    |    |
    SIMPLE      | ------ GOOD ------ |                    COMPLEX
    Readers need an 8th grade level of education.

STRENGTH INDEX:  0.76

    0.0                      0.5                          1.0
     |****|****|****|****|****|****|****|*** |    |    |    |
    WEAK                                                STRONG
    The strength of delivery is good, but can be improved.


DESCRIPTIVE INDEX:  0.31

    0.1             0.5                  0.9            1.1
     |****|****|    |    |    |    |    |    |    |    |    |
    TERSE  | ------------ NORMAL ------------ |          WORDY
    The use of adjectives and adverbs is normal.

JARGON INDEX:  0.00

SENTENCE STRUCTURE RECOMMENDATIONS:
    15. No Recommendations.

                    << WORDS TO REVIEW >>
Review this list for negative words (N), jargon (J),
colloquial words (C), misused words (M), misspellings (?),
or words which your reader may not understand (?).
              O.(?)  2                        P.(?)  2
              S.(?)  1                alternate(?)  1
          bohdan(?)  1                   elliot(?)  1
       englewood(?)  1                      isbn(?)  1
           keene(?)  2                     [redacted](?)  1
       lifelong(?)  1                        not(N)  1
    peterborough(?)  1                     [redacted](?)  1
      semester's(?)  1                  syllabus(?)  2
          [redacted](?)  1                    wynar(?)  1
              << END OF WORDS TO REVIEW LIST >>
                        <<** END OF SUMMARY **>>
```

Figure 1. A typical business letter. The blacked-out items are personal names, which RightWriter *doesn't understand.*

```
IX.  Well, tell me.  Am I wrong?  What DOES the public want?  What is
the library of the future, or is there one?  Will libraries cease to
exist, to be replaced<<*_S1. PASSIVE VOICE: be replaced *>> by
pay-by-the-question information services, professional storytellers,
and the elementary-school secretaries taking care<<*_S15. IS THIS
AMBIGUOUS? school secretaries taking care *>> of the books in her (ha
ha<<*_G13. REPEATED WORD *>>) spare time?<<*_G3. SPLIT INTO 2
SENTENCES? *>><<*_S3. LONG SENTENCE: 33 WORDS *>>
   If there are people out there who love reading and libraries and use
their services, and feel that libraries are important, they should say
so, and they had better start saying so mighty damn<<* U1. COLLOQUIAL:
damn *>> quick.<<*_G3. SPLIT INTO 2 SENTENCES? *>><<*_S3. LONG
SENTENCE: 35 WORDS *>>  Otherwise you will watch libraries go the way
of the dodo and the mammoth.  Don't say you weren't warned<<*_S1.
PASSIVE VOICE: weren't warned *>>.


                        <<** SUMMARY **>>

Overall critique for: C:\DESK\LIBRARY.DOC
Output document name: C:\DESK\LIBRARY.out

READABILITY INDEX:  7.94

     4th         6th         8th         10th        12th        14th
      |****|****|****|****|    |    |    |    |    |    |
     SIMPLE       | ------ GOOD ------ |                    COMPLEX
     Readers need an 8th grade level of education.


STRENGTH INDEX:  0.47

     0.0                         0.5                          1.0
      |****|****|****|****|****|*** |    |    |    |    |    |
     WEAK                                                  STRONG
     The writing can be made more direct by using:
                         - the active voice
                         - less wordy phrases
                         - fewer weak phrases
                         - more common words
                         - more positive wording
                         - less slang


DESCRIPTIVE INDEX:  0.45

     0.1                 0.5                 0.9         1.1
      |****|****|****|****|*   |    |    |    |    |    |
     TERSE  | ------------ NORMAL ------------ |         WORDY
     The use of adjectives and adverbs is normal.


JARGON INDEX:  0.00

SENTENCE STRUCTURE RECOMMENDATIONS:
   15. No Recommendations.
```

Figure 2. Speech notes. Odd sentences, bad attitude; and RightWriter *comments on both.*

demands. It does not change your original file. Instead, it creates another file with the same name, but with the extension *.OUT*. This file contains comments it makes along the way regarding your work, and finishes with Readability Index, Strength Index, Descriptive Index, and Jargon Index. It makes sentence structure recommendations. Then, it lists words to review, a list of items it did not understand or that might be open to several interpretations.

You, the user, run your *.DOC* file through *RightWriter*, using the *Analyze Document* command (*F3/Analyze* from the *RightWriter* program OR *CONTROL-A* from the *RightWriter* program OR highlight the *.DOC* file you want analyzed from the *RIGHT* box in *DeskMate*). It creates the *.OUT* file for you to examine with the *TEXT* program.

LEFT OUT

One small nuisance, right here, is that because the resulting file has an *.OUT* extension, it won't show up in your *TEXT* window! Only *.DOC* files do. You have to know what you're looking for when you call it up in *TEXT*. So you have to examine the *F2 (Files)* and *Analyze* box while you are still in *RightWriter* to be sure you have the name of the right *.OUT* file before you go, or else exit *DeskMate* to take a look. This is awkward.

This awkwardness also illustrates the major difference between *RightWriter* and other grammar-checker programs: *RightWriter* is not an interactive program. Other grammar checkers keep you glued to your seat, because they stop at everything they think might be an error and ask you about it.

YOU CAN COME UNGLUED

With *RightWriter*, you can leave your computer and come back to a completed file full of questions, which you can answer at your leisure. You don't have to make on-the-spot decisions. You can make a printout, to take off somewhere with a blue pencil, and come back later to make some changes—or not make them—after some thought.

It seems to be a matter of taste, judging by whom I've talked to. (Hm. Wonder what *RightWriter* would do to that sentence?) Then, after making the changes you decide on with *TEXT*, you can ask *RightWriter* to go back through the *.OUT* file and "strain out" all the comments it inserted (using the *Remove Comments* command). It will take the *.OUT* file you indicate and turn it back into a *.DOC* file.

If your original text file is still listed, it will ask if you wish to overwrite it or create a fresh file. I did notice a few extra linefeeds at the end of this step. It was not clean, but it was easily fixed.

Figure 1 is a brief letter that I ran through *RightWriter*. As you can see, *RightWriter*'s comments are separated from my original text by double carets and boldface. Immediately appended to my original work is a summary, listing the results of the letter according to *RightWriter*.

COMPATIBILITY

I also tried *RightWriter* with another word processor besides *TEXT*. I called up the *RightWriter* program and pointed out the disk area and subdirectory when I typed in the file name. Unless I countermand the original default positions, *RightWriter* automatically identifies the word processor of the document file in question.

Its corresponding *.OUT* file, also named and directed to a particular location by the user, will have comments indicated in the manner used by that particular word processor.

For instance, it examined a *WordStar* file for me. All comments and responses for were boldfaced à la *WordStar*, with all the proper *CONTROL-PB* characters. (My second illustration, Figure 2, is a portion of a set of notes I made for a speech. The grammar checker rightly disapproves of my half-written thoughts and bad attitude on the topic.)

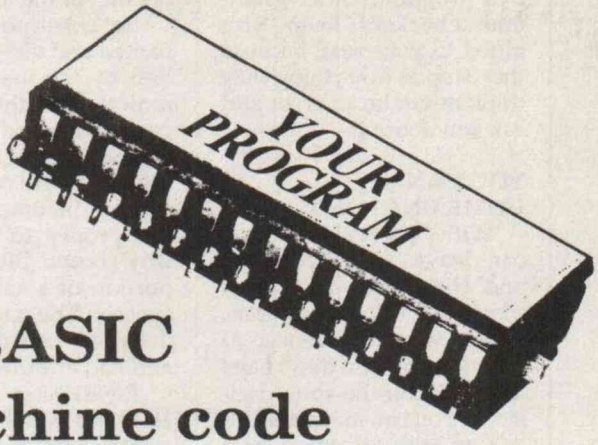
RightWriter is fully compatible with 18 major word processors and can accommodate many more with a few minor adjustments. The minor adjustments are also described in the manual.

RightWriter boldfaces its comments, and also labels each with a code described in the manual in more detail. The general comment codes begin with *C* (capitalization), *G* (grammar), *P* (punctuation), *S* (style), or *U* (usage), and then a number, and the codes—praise be—are listed in the index.

```
                    <<* S7. SENTENCE BEGINS WITH "BUT" *>>
when I knew I had company.  I was annoyed that anyone had the
   <<* S1. PASSIVE VOICE: was annoyed *>>
nerve to tail me.  I was also annoyed that I was being tailed by
                    <<* S1. PASSIVE VOICE: was also annoyed *>>
an amateur I could spot within two blocks.  I deserved a little
more respect than that.
     I turned the corner, but instead of ducking into the nearest
crevice I reached upward.  There was a decorative stone ledge
above my head.  I grabbed it and pulled myself skyward.  People
never think to look up.
     My shadower rounded the corner, too, then came to a complete
halt.  Either he had lost me or I was laying for him.  Cautiously
he slid against the alleyway, waiting for me to peek out from
   <<* P3. IS COMMA MISSING AFTER Cautiously ? *>>
around the next corner.
     "Zinger, you boob," I said, and I jumped down on him, hard.
                                   <<* U1. COLLOQUIAL: boob *>>
     Zinger grunted and went down like a stone.  Of course, I had
                                   <<* U1. COLLOQUIAL: grunted *>>
hit him with both feet.  I needed to; Silurians are practically
made of iron, even if they look like shortchanged lizards.  When
   <<* S1. PASSIVE VOICE: are practically made *>>
I hit a Silurian I always hit him with everything I've got.  It's
                    <<* P3. IS COMMA MISSING AFTER Silurian ? *>>
a good habit.
     He was out cold.  As I dragged him into the alley his head
rolled back and forth, and he groaned.  I slapped his cheek
lightly.  Zinger groaned again.  "Death, you didn't have to do
that."
     "Sure I didn't.  You shadow me, you get what you deserve.
Out with it, Zinger.  Why the spy routine?"
   <<* G2. IS THIS A COMPLETE SENTENCE? *>>
     He hauled himself to his feet.  "Curiosity, mainly.  I like
                    <<* G2. IS THIS A COMPLETE SENTENCE? *>>
to see what happens to my artwork."
     "I told you."
     "Balls."  The worst word Zinger ever used.  "You wouldn't
look at Anni because you didn't want to see what she looked like
alive.  You were there to get the thrill, Death.  What were you
doing, telling that crap about a client?"
                                   <<* U1. COLLOQUIAL: crap *>>
     I grimaced.  I hadn't realized I'd been quite that
transparent.  "Sorry, Zinger.  You're right, of course."
     "Worth a drink to discuss it?"
     "A drink?  Are you kidding?  You think I'm buying you a
        <<* U1. COLLOQUIAL: kidding *>>
drink?  Not a chance, Zinger."
                    <<* G2. IS THIS A COMPLETE SENTENCE? *>>
     "Well," Zinger suggested, "it would give us a chance to
discuss this in private instead of having me wonder aloud why
Moriah Death is into viewing fake dead bodies all of a sudden."
     <<* U21. NEGATIVE: fake dead *>>
                         <<* G3. SPLIT INTO 2 SENTENCES? *>>
                    <<* S11. IS SENTENCE TOO NEGATIVE? *>>
```

Figure 3. Fiction. All characters don't speak perfect English, but I won't be forced to change anything.

Your own Program on a Rom



8K or
32K
Your BASIC
or machine code
program on a custom
ROM ready to snap into
your Model 100 or
Tandy 200.
You can't tell your
program from a built-in.
Starting at $50.00 each.
Minimum order of 10.
Quantity pricing as low
as
$15.00

Another fine product
from the innovative people at PCSG

Distributed by

Tri-Mike Network East

Post Office Box 372 Peterborough, NH 03458
1-603-924-8663
VISA MASTERCARD C.O.D

Circle 75 on reader service card.

As you become more conversant with the features of *RightWriter*, you can turn these rules on and off, depending on whether you find them useful. For instance, if you are writing an essay in the colloquial, perhaps you won't want a *COLLOQUIAL* note after every other word!

Figure 3 is an excerpt of another *WordStar .OUT* file, containing comments that I won't be changing, however much *RightWriter* disapproves, because they are part of the conversation of the characters in a fiction story. As the authors of the manual remind me often, just because *RightWriter* made a note, it does not force me to change the sentence.

WHAT IT ADDRESSES

The notes placed throughout the examined text file are technical and mechanical. In contrast, the summary at the end answers the question: Am I reaching my intended audience? I may choose a writing style for which *RightWriter* examines my work: general public/high school/college education level; a type of writing designed for general business, technical, manual, proposal, or fiction.

The readability index tells me if my technical report requires only a third-grade reading level, which might be embarrassing. The strength index shows me if my delivery is too watery or too passive. The descriptive index highlights over-flowery unnecessary redundant verbiage. The jargon index points out my hackerism or other wirehead traits, if they show. Sentence structure recommendations are picked from a "laundry list" of fifteen or so possibilities. The summary wrapup consists of the words that *RightWriter* thinks I ought to consider—or reconsider. (This includes proper names, which of course it does not understand.)

Verdict? I like it. I won't follow all *RightWriter*'s recommendations, but that's one of the recommendations, actually. I can probably make my fiction a little tougher and my reports a little more concise. It goes with *DeskMate*'s *Text* (and also with *WordStar*) like apple pie and cheese. That well-known blue, black, and white package makes a welcome addition to the line of *DeskMate*-ready products available for Tandy and other MS-DOS computers.

Manufacturer's Specifications

RightWriter—$79.95
RightSoft, Inc.

Available from all Tandy/Radio Shack stores.

COMPATIBILITY: Model 100/102 and 200 computers.

Better Letterheads, Part One

Nuge looks at some design problems and solutions.

by Mike Nugent

Last month we played with *Write ROM*'s *.in xxxxxx* dot command, which lets you include other files within a document at printing time. With it, you can "boilerplate" frequently used phrases, paragraphs, spreadsheet data, even entire multi-page documents.

I mentioned then that it's well suited for producing letterheads, and I included an example of a simple one (*LHEAD.DO*) that showed how to automatically print the current day and date, and automatically center the text on the page. It's very straightforward and easy to do ... usually. But as you've seen (SUPER HERO, Dec. '91), things can become less simple when we start mixing different font sizes.

Don't despair. You can embed special characters in a text file.

THE FIRST PROBLEM

That's what Gary Girth, hypothetical president of the hypothetical Wide Load, Inc., recently discovered. Gary decided to model his company letterhead after *LHEAD.DO*, using margins of 10 (left) and 75 (right), appropriate for elite font, which he prefers. He fired up *Write ROM*, went to work, and in short order printed his first page.

Bummer!

Something was wrong. The text centered fine, the day and date printed correctly, and everything seemed okay. But something just didn't feel right.

After some head scratching, Gary finally put his finger on it: It was "correct" after all; it just wasn't very punchy. The company name should be more prominent, he thought. Since the name is "Wide Load, Inc.," why not print it double-wide? And why not do the whole letterhead in boldface type to make it really stand out?

```
ë^[W1◀
.oc on◀
WIDE LOAD INC.◀
^[W0◀
.ol 10◀
.or 75◀
20 Point Lane◀
Boldface, IA 12345◀
(999)999-9999ë◀
◀
%w %d◀
◀
.oc off◀
←
```

Figure 1. This sample letterhead uses two methods to control the printer: (1) via Write ROM's PRINT Code *settings, and (2) by directly embedding printer control codes in the file.*

Freshly re-inspired, Gary jumped back into his letterhead file ... and smack into his first problem.

He'd long ago programmed his *Write ROM* to use *CODE-e* (for "emphasized") to control his printer's double-strike mode. To put all his company info in boldface, he simply placed a *CODE-e* at the beginning of his letterhead (Fig. 1) and another after the phone number.

Then came the snag. None of his *PRINT Code* keys were programmed for double-wide! All were programmed for various favorite printer features, and he didn't want to change any of them. What could he do?

STRANGE (EM)BEDFELLOWS

He could study the *Write ROM* manual, of course. And he did. And he learned that he could simply embed the desired printer codes right in the text file.

His printer manual showed the code for double-wide mode as *ESC W n* (where n=1 for "on" and n=0 for "off"). He figured all he had to do was press *ESC*, then *W*, then *1* (or *0*) to type the needed codes into the file.

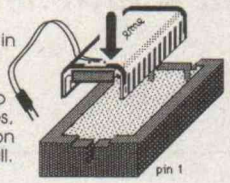
He figured wrong.

The Model T's *TEXT* program won't directly accept certain special characters known as "escape" and "control" characters. *TEXT* uses them for cursor movement and various other functions. For example, *CTRL-F* moves the cursor to the the next word in a file; *CTRL-A* moves it to the previous word. *CTRL-T* moves the cursor to the top of the screen, *CTRL-B* to the bottom. And so on. Press *ESC*, and nothing happens; press it a

Advanced Memory for your 100/102/200!

extRAM is a 32K byte read/write memory expansion that fits into your Tandy's internal option ROM socket. You can use it *either* as an additional RAM bank, to store .DO, .BA and .CO files, *or* as an additional ROM bank, to run the kind of software that normally runs from option ROM chips.

extRAM fits into the option ROM socket in the 100/102/200. A quick 2-pin plug connects extRAM to battery and WR lines, all under the snap-on cover. Easy to install.



New multiROM software!

This is for you if you have both an extRAM and a NODE rampac. Our new EXTPAC software allows you to store multiple ROM images in the rampac and load them on command into the extRAM for execution. It's lightning fast. EXTPAC presents you with a menu of the ROMs you have saved on your rampac, and in two seconds, your selection is loaded. It may be the multi-ROM bank you've been waiting for!

Of course, we still offer you the capability of using Wilson Van Alst's R2D2X utilities to save and load ROM images on the Tandy portable disk drive, or to save them on disk on another computer.

And, of course, extRAM still comes with its stand-alone EXTRAS software for using it as a 32Kbyte expansion memory to store your text and program files.

We accept Visa/Mastercard, check, money order ($ U.S.) or qualified Purchase Order.

____ extRAM for M100 $75ea. .....
____ extRAM for M102 $75ea .....
____ extRAM for T200 $75ea .....
____ extRAM software disk $15ea .....
(circle 3.5" disk format: tpdd ms-dos Mac)
Note to prior extRAM purchasers:
The software disk includes EXTPAC update.

subtotal _____
+ tax (California sales only) 7.25% .....
+ domestic priority mail shipping .....
Total _____

(Circle 83 on reader service card)

eme systems
voice: (510) 848-5725
fax: (510) 848-5748
2229 5th St., Berkeley, CA 94710


```
.ol 5◀
.or 38◀
ë^[W1◀
.oc on◀
WIDE LOAD INC.◀
^[W0◀
.ol 10◀
.or 75◀
20 Point Lane◀
Boldface, IA 12345◀
(999)999-9999ë◀
◀
%w %d◀
◀
.oc off◀
←

WAY1.DO

Page 1

  Write ROM
©PCSG 1985
```

Figure 2. To use double-wide characters, you must set new margins beforehand, and restore them afterward, as shown here.

second time and you'll exit the file and return to the main menu.

Don't despair. You can embed special characters in a text file. The procedure is described in both the Model T and *Write ROM* manuals, and Gary eventually found it. To save you the trouble, here it is: Just forewarn *TEXT* by pressing *CTRL-P* first, and then the special character.

To embed the *ESC W 1* code to turn double-wide on, Gary first pressed *CTRL-P* to tell *TEXT* that the next character he typed (*ESC*) would be special. Next he pressed *ESC*, and *TEXT* took it without complaint, showing it on the screen as *^[* (see Fig. 1). Then he simply pressed *W* and then *1*. To turn double-wide off after the company name, he pressed *CTRL-P*, then *ESC*, then *W*, then *0*. Problem solved.

Gary Girth was a groovin' guy now! He powered up the printer, punched *PRINT*, and promptly ... passed out.

(He obviously has a low frustration tolerance. We'll let him rest quietly for a bit, while we discuss what went wrong this time, why it happened, and how to fix it.)

CHARACTERS PER LINE

Sure enough, the company name printed out in double-wide boldface characters as hoped. Problem was, it began way over on the right side of the page, and even wrapped around to the next line.

Gary forgot that different font widths produce different numbers of characters per printed line. When you print double-wide, only half as many characters can fit on a line! Since *Write ROM* determines margins by counting characters per line, you must remember to set new margins when changing to wider and narrower fonts.

One solution in Gary's case is to halve the normal margins for the double-wide section, as shown in Figure 2. The *.ol 5* sets half the normal left margin of 10, and *.or 38* sets half (roughly) of the normal right margin of 75. When *Write ROM* sends five spaces for the left margin, the printer prints five double-wide spaces, resulting in the same actual left margin that would be produced by printing ten spaces of normal size. With the right margin set to 38, *Write ROM* sends the printer only 38 characters per line, but printed double-wide they consume twice the space, resulting in the same actual right margin that would be produced by printing 76 characters of normal size.

Note that the original right margin of 75 is not evenly divisible by two. Using *.or 38* gave the equivalent of a normal margin of 76; using *.or 37* would have given the equivalent of a normal margin of 74. In either case, the right margin is off by one. This is usually not noticeable,

The sky's the limit...
...with *Portable 100* magazine.

On the road . . . at home . . . in the office . . . in the air . . . the variety of tasks you can perform with your Tandy Portable is expanding constantly.

To keep fully informed and up-to-date about current trends, new products, and new uses for your laptop, you need ***Portable 100*** magazine.

From sophisticated input/output (I/O) calls and their applications to simple disk drives, ***Portable 100*** magazine covers it all.

Portable 100 gives you thorough and timely features, news, columns, and reviews. And they are written in a fast-paced, easy-to-read style, by leading computer experts.

And ***Portable 100*** gives you all this for just **$19.95**, a savings of over **54%** off the regular newsstand price! You can save even more money by subscribing for two years for only **$34.95**, a savings of almost **60%**!

Don't miss a single issue!
Fill out and mail the coupon below,
or to charge it to your credit card, call

1-603-924-9455

Portable 100—the magazine for Tandy Notebook, Laptop and Portable Computer users!

MONEY BACK GUARANTEE!

If you are not completely satisfied with *Portable 100*, you may cancel your subscription and receive a refund on the unmailed issues. Please allow 6-8 weeks for delivery of your first issue.

☐ **YES!** I want to be more productive with my Tandy portable... and save **over 54%** off the newsstand price. Send me a year's subscription (monthly except for a combined July/August issue) of *Portable 100* for only **$19.95! Save even more;** ☐ two years for just **$34.95!**

☐ MC ☐ Visa ☐ Amex
☐ Check ☐ M.O. ☐ Bill me

Make checks payable to *Portable 100*

Card Number _____ Exp. Date _____

Name _____

Address _____

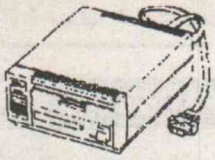
City _____ State _____ Zip _____

I have a Tandy ☐ 100/102 ☐ 200/600 ☐ WP-2 ☐ MS-DOS portable
☐ MS-DOS desktop ☐ Macintosh ☐ Other _____

Mexico & Canada: $24.95 one year, $44.95 two years; all other foreign surface: $49.95 one year, $74.95 two years; Airmail: $69.95 one year, $134.95 two years. All foreign (except Canada & Mexico) U.S. Funds drawn on U.S. Bank.

Mail coupon to: Portable 100,
P.O. Box 428, Peterborough, NH 03458-0428

PC-PDD



PC <---> Tandy Portable Disk Drive

Tandy WP-2 and Model 100/102/200 owners! Do you have an IBM PC or compatible? Are you tired of squirting your files through a null-modem cable? Tired of setting communications parameters? Of turning your PC into a Portable Disk Drive (PDD) emulator?

PC-PDD is the first program which lets you attach your Tandy PDD to your PC *and* support the WP-2 *and* Models 100/102/200 as well as *both* PDD models (original 100K and the current 200K Model 2)!

- o Copy files to/from the PDD
- o Two bank support for PDD-2
- o Format, kill, rename files
- o "Point-and-shoot" interface & directory navigator
- o DOS file editor & browser
- o and much more!

PC-PDD requires an IBM PC or 100% compatible, 512K memory and a serial port. Send check or money order for $49 + $3 S&H (CA residents add 7.75%) or circle the reader service number below. A F-F gender adapter is required. Add $7 if you need one. Specify if your PC has a 25-pin or 9-pin port.

VISA MasterCard

MicroMime
P.O. Box 28181
Santa Ana, CA 92799
CIS 70346,1267 Fax/Phone (714) 545-1765 MCI 200-3496

Circle 149 on reader service card.


```
WIDE LOAD INC.

20 Point Lane
Boldface, IA 12345
(999)999-9999

Thu Dec 19,1991
```

Figure 3. This is the letterhead produced by the file in Figure 2. Note the extra blank line.

and you needn't worry about it. However, in a case where it's critically important, just use normal margin values that are evenly divisible by two, for double-wide or compressed fonts (or divisible by three, when using triple-wide fonts on printers capable of producing them, like the NEC P6).

Figure 3 shows the resulting printout. It's well centered, and the desired info is in boldface. (The inkjet printer that printed this example doesn't produce very dark boldface type. Other printers can produce more dramatic results.)

Notice that this method produces a blank line between the company name and the rest of the letterhead (plus a blank line before the name, which may not appear in the figure as published). Because the *ESC W 1* and *ESC W 0* are on their own separate lines, *Write ROM* sends these escape sequences to the printer, followed by a carriage return that advances the paper. If that's acceptable for your application, fine. If not, there are ways to get around it. They're a bit more complex than simply halving the margins, but they work well, and we'll dicuss them next time around.

Meantime, let's just let Gary sleep. He's going to need it!

COMPATIBILITY: Tandy 100, 102, 200, NEC PC-8201A/8300, Kyocera KC-85, Olivetti M10.

Ultimate ROM II, Part Two

Gene wraps up his head-to-head reviews of Ultimate ROM II *and* Super ROM

by Gene Wilburn

Last month I looked at *T-Word* and *ROMView-80*. This month you'll get a look at *T-Base*, *Idea!*, and the *TS-DOS* component of *Ultimate ROM II*.

T-Base

In a previous column I stated how much I enjoy using the *Lucid* spreadsheet in *Super ROM*. Now I must state how equally pleased I am with the design of *T-Base*, the database module of *Ultimate ROM II*. Here is a nifty, relational database packed into a chip the size of a postage stamp.

Although there is a database module you can use with *Lucid*, I'm a traditionalist. I prefer to design data sets with field names, specific field lengths, and specific field types. If you're like me, you'll probably feel right at home with *T-Base*, its concepts being *terra cognita* to users of *dBase*, *FoxPro*, *Paradox*, and other such products.

Admittedly, the syntax of *T-Base* is a bit weird. To define a data set, you create its definition file using *TEXT* via a *T-Base* function. See Listing 1 for the definition of a simple mailing list data set. The first line denotes how many fields will be in the data set. The field names and their order follow. Then comes the on-screen prompt followed by the length of each field, followed by the type of field. In this simple example the *T* stands for text, or character, field.

Once a data set is defined, you exit *TEXT* and begin to enter data. For a simple data set, this is all you need. The basic rules are that no single field may be larger than 39 characters and the total number of characters allotted to any data set may not exceed 255.

There are six primary data types: *T*, *I*, *$*, *F*, *D*, and *U*, for text, integer, dollar and two-place decimal, floating decimal, date, and user-defined. There are also secondary field types—*B*, *BS*, *C*, *CS*, and *M*, representing borrowed, borrowed and stored, calculated, calculated and stored, and mandatory. Types can be combined, such as *TM* for mandatory text, or, as some products refer to it, a "must-fill character field."

It should be noted that *T-Base* is frugal with storage. Data is stored in comma-delimited format, one line per record. Fields with a null value—i.e., nothing is entered for them—take up no space except for the comma to mark the field placement.

Here is a nifty, relational database packed into a chip the size of a postage stamp.

RELATIONAL DATABASE

What really distinguishes *T-Base* is its ability to handle relationships between data sets. In relational database design, redundant data is kept to a minimum by "normalizing" data into logical components that tie together through a relational key.

To understand this fully requires study, but let me offer a simple example. In a typical mailing list there is a tendency to repeat data. If, for instance, you are tracking a number of people who work in the same company, the company name, address lines, city, state, and postal codes get repeated for every person in that company.

```
10,LNAME,FNAME,HONR,TITLE,COM
PANY,ADDR1,ADDR2,CITY,STATE,PO
STAL
Last Name:,20,T
First Name:,20,T
Honorific:,5,T
Title:,29,T
Company:,29,T
Addr1:,29,T
Addr2:,29,T
City:,25,T
State/Province:,2,T
Postal/Zip:,10,T
```

Listing 1. The definition file for a simple mailing list data set for T-Base, *the Ultimate ROM II's powerful relational database.*

Let's suppose that you're a salesperson who is tracking companies. Some of the companies are already customers and some are prospects. Your contact list will usually include the names of two or more contacts per company.

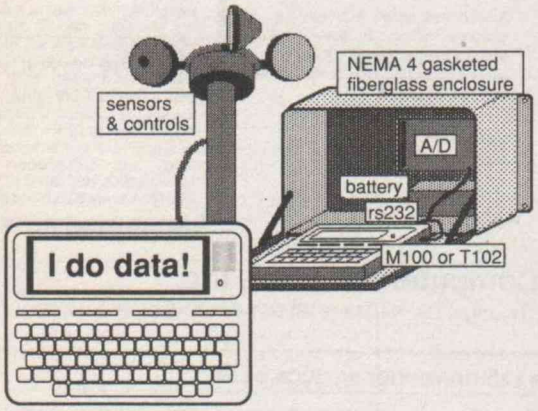
You could break this out into two *T-Base* data sets—one for companies and one for contacts within the companies. There are advantages to this. If the company moves or changes names, you need to change this in the database only once. If one of your contacts moves to a different company in your database, you have to change only the Company ID field.

Look at Listing 2 to see what the two data sets—one named *COMP*S.DO* and one named *INDV*S.DO*—might look like. Let's say you have a company record that looks like what's shown in Listing 3. Then when you fill in the form for contact, you get what is in Listing 4.

The data shown here in boldface (though it won't be in boldface on your computer screen) is actually read from the company data set, where it is stored,

The Owl, On-site Weather Logger.

You already know about the screen, the keyboard, the ports, the programmability, the economy and all the other great features of the M100/T102 computer. To us what that makes is a great platform for an intelligent data logger! We've thought so ever since 1984, when we made our first logger for use in apple orchards as part of a research project at the University of California, Berkeley. Today, EME Systems continues to provide model T hardware add-ons, software and consulting solutions for tough data logging problems in the laboratory, in industry, and especially in the great out of doors.



- Analog to Digital converter plugs into Tandy serial port.
- 7 input channels with 8 bit resolution, 1.28 volts full scale. Perfect with LM34/35 integrated temperature sensors. 0.005 volts per bit. Inputs are protected to ± 150 volts. Expandable to 49 inputs using optional multiplexers.
- 5 on-off outputs, for control of motors, valves, heaters, etc., Expandable to 32 on-off outputs using optional multiplexer.
- Weatherproof case holds both the T100/102 and the analog to digital converter, etc. . Box has 2 padlock hasps. The A/D is also available without the case.
- Months of operation on battery & solar panel is possible in *powersaver* mode. The system wakes up intervals to take readings, then goes back to sleep. Continuous operation on AC power adapter & backup battery also supported.
- Probes and adapters available for: temperature, humidity, windspeed & direction, light level, rainfall, surface moisture, pH, pressure, voltage current and more.
- Flexible HOOT software allows you to assign any channel to any type of sensor. Software "drivers" for popular sensors are included. You can modify those or write your own and merge them with the HOOT program for special applications.
- Data can be logged to a RAM file or to a printer at intervals selectable from 10 seconds to 2 hours. Data file format transfers to most PC spreadsheets.

The basic **OWL** including the A/D *and* the NEMA weatherproof case costs only $385 — very competitive with comparable data logging systems. Please request our catalog for further information about our products and services.

(Circle 85 on reader service card)

eme systems
voice: (510) 848-5725
fax: (510) 848-5748
2229 5th St., Berkeley, CA 94710


```
9,COMPID,COMPANY,ADDR1,ADDR2,
CITY,STATE,POSTAL,SWBRD,COMPF
AX
Company ID:,5,TM
Company Name:,29,T
Addr1:,29,T
Addr2:,29,T
City:,25,T
State/Province:,2,T
Postal/Zip:,10,T
Switchboard:,14,T
Main FAX:,14,T

11,COMPID,NAMEID,LNAME,FNAME,
HONR,TITLE,COMPANY,PHONE,INDF
AX,COMPFAX,SWBRD,LAST,NEXT
Company ID:,5,TM
NameID:,5,TM
Last Name:,20,T
First Name:,20,T
Honorific:,5,T
Title:,29,T
Company:,29,TB,COMP,COMPID,COMPANY
Phone:,14,T
Company Switchboard:,14,TB,CO
MP,COMPID,SWBRD
Fax:,14,T
Central Fax:,14,TB,COMP,COMPI
D,FAX
Last Date Contacted:,6,D
Next Date of Contact:,6,D
```

*Listing 2. Two data sets: The first (COMP*S.DO) is a data set for a company, the second (INDV*S.DO), a data set for an individual. The two are tied together—or are related—by the company ID.*

and only *displays* in the individual's data set. It does this through the *T-Base* "borrow" data type that references another data set with three parameters: the name of the data set, the unique ID of the correct record, and the field within that record to "borrow." These parameters

Functions such as *ABS, ASC, VAL, RIGHT$, &LEFT$,* will warm the hearts of *BASIC* programmers.

are stored in the individual's data set, saving space and centralizing the company's data to one data set.

You can link more than two data sets in this way. Three- or four-way joins are common. The *T-Base* manual offers some good business examples using customers, suppliers, products, and orders.

T-Base is also set up to do relation joins in its reports, which can be sent to display, to print, to a file, or out a modem. With its frugal data storage and its relational capabilities, you can squeeze in some useful databases on a Model T. There is also a rich set of functions, from mathematical to string functions. Notably, functions such as *ABS, ASC, VAL, RIGHT$, LEFT$, TIME$,* and *DATE$* will warm the hearts of *BASIC* programmers.

DOWNSIDE

As much as I like *T-Base,* I must also point out its Achilles heel: it is slow. While more straightforward to me than working with the *Lucid Data* module of the *Super ROM* chip, the sluggishness of the product is a burden. If this product were written in machine language and had the snap of *Lucid,* I'd give it top marks. As it is, you'll need to develop patience to use it. The feature set, however, is excellent, and it may just keep you willing to use it regardless of its performance.

IDEA!

The weakest module in the *Ultimate ROM II* set is the *Idea!* outliner. In fact, I'm not going to dwell long on it because it is unbearably slow and does not have the redeeming features of *T-Base.*

```
Company ID:ROM
Company Name:Royal Ontari
o Museum
Addr1:100 Queen's Park
Addr2:
City:Toronto
State/Province:ON
Postal/Zip:M5S 2C6
Switchboard:416-586-1111
Main FAX:416-586-5863
```

Listing 3. A sample company record for one company. Listing 4 shows how some of the information in this record can be displayed in an individual's record using a relational database such as T-Base.

An outliner must have relatively good speed or it can't be used to brainstorm ideas. *Idea!* is not in the same league as *Thought*—the outliner in the *Super ROM* chip.

In addition to being slow, it lacks standard outlining features, such as the ability to promote and demote headings easily. It does have the ability to collapse and expand headings, but the procedure is awkward and unnatural.

Idea! has only one feature that has endeared itself to me. It allows me to add large amounts of text under any heading or subheading. But this did not make up for the product's lack of speed, its lack of standard features, and its poorly written manual.

TS-RANDOM

Tucked into *Ultimate ROM II* is an extremely useful fragment for those who own the Traveling Software (Club 100) *TS-DOS* product. Instead of taking up RAM with a floppy-drive manager such as *FLOPPY.CO*, *UR2* keeps a loading program in ROM. It loads the *TS-DOS* driver from floppy when it is used rather than storing it in RAM. This works well, but has the downside that you have to copy the main portion of *TS-DOS* to each floppy you create before you can access it.

The built-in driver allows *UR2* to access files on floppy as easily as those in the Model T's RAM.

AND THE WINNER IS . . .

Well, this wraps up our extended look at the two leading ROM packages for the Model T. In one corner we have *Ultimate ROM II*, weighing in at $89 and offering word processing, relational database, outlining, easy diskette access, and an incredibly useful screen utility that gives a Model T up to 60 characters per line. In the other corner is the *Super ROM*, weighing in at $199 and offering word processing, outlining, spreadsheet, and spreadsheet-based database.

And the winner is . . . *the customer.* Damned right. Both products cost far less than any single major DOS product. Both take your Model T computing to new heights.

The *Ultimate ROM II*, at $89, offers the best all-around set of utilities, plus a sophisticated, if slow, relational database program. *ROM-View 80* may keep you happy with your Model T for much longer than you might have expected. Seeing more words on the screen helps greatly with writing.

Super ROM, at $199, is the quality champ. Its tightly integrated, machine-language modules work as fast as the Model T processor allows. You get an excellent outliner and access to the best Model T spreadsheet available. Unfortunately, you don't get more characters per line, nor do you get disk access.

And the winner is . . . *the customer.*

FAREWELL

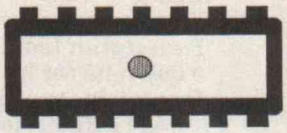
This month's JOYRIDE column wraps up our look at those amazing ROM products for the Model T. It also wraps up my stay as the JOYRIDE columnist. I'm off to a new set of challenges and commitments. Thanks to all of you who took the time to write to me or send me e-mail on CompuServe. Keep your batteries charged and your portable handy!

You can communicate with Gene via CompuServe (his ID is 72435,732), through regular mail in care of Portable 100, *or direct at 91 Inglewood Drive, Mississauga, Ontario, Canada L5G 1X9. Please add sufficient postage if you mail to Canada and an international reply coupon when requesting a reply.*

```
Company ID:ROM
NameID:WILBG
Last Name:Wilburn
First Name:Gene
Honorific:Mr.
Title:Sr. Systems Analyst
Company:Royal Ontario Museum
Phone:416-586-5626
Switchboard:416-586-1111
Fax:
Central FAX:416-586-5863
Last Date Contacted:112591
Next Date of Contact:021292
```

Listing 4. An individual contact's record. The boldface data shows where information from one data set (here, from a company data set) can be displayed in another data set.

PUT YOUR PROGRAMS ON A ROM



With our tools, you can put your own programs on a ROM. Or take advantage of our custom ROM service, and we will do it for you.

RBASIC - $345.00

Now using RBASIC V5.0 you can put more than one BASIC program on one Tandy Model 100, 102, Or 200 ROM.

The improved system also drastically reduces module sizes enabling even larger programs to be put on a ROM and includes other internal enhancements increasing its range of convertable code.

C100 - $699.00

Cross development system for putting 'C' programs on an Option ROM.

HARDWARE

Eproms, Adapters, Socketed development adapters, Eprom Burners, Erasers,

MODEL 100/102 APPLICATION NOTES
(Individually priced)

A technical series intended to illustrate some of the capabilities of the Model 100/102 while addressing real problems with real solutions.

Call for new prices.
Bulk discounts available.

HALF PRICE OFFER ENDS
JANUARY 30th, 1992

Secrets Of Rom Revealed

This concise, easy to understand manual covers everything you need to know to call standard Model 100/102 ROM routines from an Option ROM (listings included), how to call the text editor from .CO and Option ROM programs, the source code for a complete option ROM program that does a search and replace on test files, and information on Model 200 & NEC 8201 ROMS. Diskette included, $25.00 + shipping

King Computer Services, Inc.
10350 Samoa Avenue, Tujunga, CA 91042 (818) 951-5240, (818) 353-1278

Circle 116 on reader service card.

Changes your Model 100 into a totally different computer with capability you never thought possible.

Lucid™

on Snap-In™ ROM

Another fine product from the innovative people at PCSG!

Infoworld rated Lucid's performance "excellent"

NOW AVAILABLE ON M-200

TMNE says "Satisfaction Guaranteed or your money back within 30 days!"

LUCID© is here now. It is on a ROM cartridge that snaps into the compartment on the back of your Model 100. It takes no memory to load and no memory for operating overhead. That means you have the full 29.6k bytes free to store your data.

First, LUCID© is memory conserving. It will let you build a large spreadsheet–255 row by 126 column capacity. You build huge spreadsheets in your Model 100's RAM that could consume 80 to 100K on a desktop computer.

Secondly, LUCID© is fast. LUCID© is so rapid, a 36 column corporate financial statement took less than 4 seconds to calculate.

Thirdly, LUCID© has features you won't find in most other spreadsheets. For example, when you type a label (text) it will cross column boundaries; in other words when you type a label or title it will appear as you type it irrespective of column or width. LUCID© also allows you to set column widths individually, and of course LUCID© has insert row and insert columns, as well as other standard features. LUCID© even lets your formulas refer to cells in other spreadsheet files.

Further, LUCID© has what no other spreadsheet has: Cut, Copy, and Paste. It uses the same keys as Cut and Paste in TEXT, but here's the difference: it takes all the formulas with it when you paste and they all automatically recalculate with the entire sheet.

And here is what is really amazing. You can copy or cut from one spreadsheet and paste into another spreadsheet or even a TEXT file.

LUCID©supports all BASIC math functions as well as Log, sine, cosine, tangent, exponentiation and other sophisticated math functions.

LUCID© has so many features that you will say "this is what I need in a spreadsheet", such as automatic prompting of an incorrectly typed-in formula showing just where the mistake was made.

LUCID© has expanded "go to" functions that remember and produce a windowing capability.

But perhaps most remarkable is that LUCID© is not only a spreadsheet but a program generator as well. First, LUCID© lets you protect all cells against entry or change, and then unprotect just the cells you want for someone else to use as input fields.

LUCID© will not only process values, but text input as well so that the facts other than numbers can be responded to. LUCID© has the ability for you to refer in a formula to cells containing words. This feature combines with the capacity of doing "if then" statements that work by doing table lookups against even massive X/Y charts of text or numerical information. You can produce a program that responds to inputs with no programming knowledge whatsoever.

You can prepare a report section in your spreadsheet with instructions to your user for printout, and they can produce a personalized printout that responds to their input. All your formulas and tables that did the calculations and provided the facts are invisible to that user. LUCID© is useful for doctors for patient questionnaires, troubleshooting technicians, purchase clerks, people doing job quotes, stores for customer workups, insurance agents and anybody who needs to process specific facts and numbers to produce a report based on those responses.

LUCID© comes with a manual that explains not only the characteristics of LUCID©, but will train you how to use a spreadsheet even if you have never seen one before. You are shown how to do budgets, forecasts, breakeven analysis amortizations and many other types of personal and business reports and calculations.

User friendly is such an over-used term in this industry, but a typical comment has been "I have never seen a spreadsheet that does so much, and yet LUCID© is so much easier and faster to use."

LUCID© is a result of a most exhaustive developmental effort in which PCSG's objective was to develop a spreadsheet that was better than the state-of-the-art. We are so pleased because LUCID© provides for the Model 100 spreadsheet capability you cannot equal on a desktop computer.

LUCID© is, in our opinion and that of those who have examined it, a breakthrough. We sell it on a 30 day trial. If you are not completely satisfied, return it within 30 days for a full refund. Priced at $99.95 on snap-in ROM. Please add $5.00 for shipping and handling. Mastercard, Visa, American Express or C.O.D.

©PCSG 1984,1991

Distributed by:

Tri-Mike Network East

1-603-924-8663

P.O. Box 372,
Peterborough, NH 03458

Circle 74 on reader service card.

Text processing power that no other program can equal.

NOW AVAILABLE ON M-200!

WriteROM©

on Snap-in Cartridge $99.95

(please add $5.00 shipping and handling charge to your order)

TMNE says "Send it back in 30 days for a full refund if you don't agree."

WRITE ROM is the definitive word processing extension for the Model 100. PCSG produced the first text formatter for the Model 100, now sold by Radio Shack as Scripsit 100. Now, 18 months later, PSCG introduced WRITE ROM. Those who have experienced it say WRITE ROM literally doubles the power of the Model 100.

WRITE ROM — as its name implies — is on a snap-in ROM. You simply open the little compartment on the back of the Model 100 with a quarter and press WRITE ROM in. It's as easy as an Atari game cartridge. You can use other ROM programs like Lucid whenever you wish.

WRITE ROM lets you do every formatting function you'd expect, like setting margins, centering, right justifying and creating headers and footers. But it does them under function key control.

WRITE ROM remembers your favorite format settings so you can print a document without any setup, but you can change any formatting or printing parameter instantly with a function key.

WRITE ROM's "pixel mapping" feature shows you an instant picture on the screen of how your printout will look on paper.

In all there are 64 separate features and functions you can do with WRITE ROM, and some of these features are truly breakthroughs for the Model 100.

First, WRITE ROM lets you do search and replace. Any word or phrase in a document can be searched for and replaced with any other phrase where the search words appear.

Second, WRITE ROM lets you send any text (formatted or not) to any other computer over the phone with just a function key. What's more, it dials and handles sign-on and sign-off protocol automatically.

Third, WRITE ROM has a wonderful feature called Library that lets you record favorite phrases, words or commonly used expressions (often called boilerplate).

Any place you wish Library text to appear you just type a code. WRITE ROM automatically inserts the text just like a Xerox Memory Writer. Picture what you can do with that kind of capability.

WRITE ROM is blindingly fast. No one can claim faster operation. Because it is on ROM it uses virtually none of your precious RAM. It works with any printer, serial or parallel. You can make a duplicate copy of a document file under a new filename. Rename or delete (kill) any RAM file with function key ease.

This description only scratches the surface of this amazingly powerful piece of software. Dot commands allow control of such things as margins, centering, line spacing and other changes in the middle of a document. Most are WordStar™ compatible.

A mailmerge feature allows you to send the same document to every name on your mailing list, personalized for each recipient.

WRITE ROM enables you to do underlining, boldface and correspondence mode as well as any other font feature like superscripts that your printer supports, in a way that many users say "is worth the price of the program."

To underline you don't have to remember a complicated printer code. You just type CODE u, and to stop underline, CODE u again. The CODE key is to the right of your spacebar. Boldface? CODE b to start and stop. Easy to remember and do. Five different printer features of your choice.

We couldn't list all the features here. For example, you can select not just double space but triple or any other. You can use your TAB key in a document. WRITE ROM allows you to undent. This means you can have paragraphs with a first line projecting to the left of the rest of the paragraph. WRITE ROM has a feature unique for any word processor on any computer. It's called FORM. FORM is an interactive mechanism that lets you create screen prompts so that you or someone else can answer them to fill out forms or questionnaires.

With FORM, any place that you had previously typed a GRAPH T and a prompt in a document, WRITE ROM will stop and show you that prompt on the screen. You can type in directly on the screen and when you press F8 you see the next prompt. It goes to a printer or a RAM file.

Think how you can use FORM. A doctor or nurse could use it for a patient's history with each question appearing on the screen. An insurance salesman could use it for his entire questionnaire. You could construct a series of prompts to answer correspondence, typing the answers, even using Library codes. This feature lets you answer letters in rapid-fire fashion, each with personalized or standard responses.

Before WRITE ROM you had to be a programmer to create a series of prompts. Now it's as simple as GRAPH T.

PSCG makes the claim that WRITE ROM is the easiest, fastest and most feature-rich formatter for the Model 100. We're happy to offer WRITE ROM because it expands the 100 to a dimension of text processing you cannot equal on even larger computers.

We brashly state that WRITE ROM is the best you can buy. But put that to the test. If you aren't as excited as we are, return it for a full refund. Priced at $99.95 on snap-in ROM. Mastercard, Visa, American Express and COD. Please add $5.00 shipping and handling charge.

Distributed by: **Tri-Mike Network East**

P.O. Box 372, Peterborough, NH 03458

1 (603) 924-8663

VISA / MASTER CARD / AM. EXP. / C.O.D.

Another fine product from the innovative people at PCSG!

Circle 71 on reader service card.

COMPATIBILITY: WP-2.

WHO, WHAT, WHEN: The WP-2 Calendar

Make your day and organize your life.

by Stan Wong

The WP-2 excels as word processor. I bought the WP-2 to help me with my word processing tasks and it's served me very well. If it can help me with other aspects of my life and work, then that's icing on the cake (anything that can increase my output of clichés is useful to me).

It didn't come as a surprise to me to discover that the WP-2 has a built-in *Calendar, Phone,* and *Telcom functions.* At first glance, these seem to be roughly analogous to the Model 100 *ADDRS, SCHDL,* and *TELCOM* functions. And they are, on the surface. But look deeper and you'll find that these "extra" functions are different and can be truly useful even in a "dedicated" word processor.

IT'S ABOUT TIME

This month I'll talk about the WP-2 *Calendar* function, also known as *F2-0* to its fans. The *Calendar* function can help you organize your life. It lets you create, sort, update, and store one or more lists of events. It's not part of the WP-2 mainstream functions, but useful nonetheless.

The *Calendar* uses four basic functions, "WP-2" style: a) create a calendar, b) update a calendar, c) sort a calendar, and d) print a calendar.

Using the *Calendar* function is conceptually similar to MS-DOS's terminate-and-stay-resident (TSR) programs. For those of you unfamiliar with DOS, TSR's are programs that you can "pop up" in the middle of another program. One of the first and most popular TSR's is Borland's *Sidekick* program. You can pop up a notepad and record thoughts in the middle of your spreadsheet program. When you exit the TSR, you are returned to the point where you interrupted your application.

How you access the *Calendar* determines what functions you'll be allowed to perform. You can access your calendar from the *Files* menu or from within a document.

INSIDE JOB

You can invoke the *Calendar* function while you are editing a document. For instance, let's say that you are working on next month's sales forecast when suddenly the phone rings. It's your boss asking you to attend a meeting in his place tomorrow at 10:00 A.M. A quick *F2-0* keypress gets you into your calendar. Good, no conflict. After assuring your boss that you'll take care of the matter, you enter the appointment, re-sort your list, and go back to editing the sales forecast. Not bad for a word processor!

You'll find that these "extra" functions can be truly useful even in a "dedicated" word processor.

The calendar function can be useful if you carry your WP-2 around with you. The calendar function is not as powerful or full-featured like a Casio B.O.S.S., Sharp Wizard, or HP 95LX, but it can help you manage your day.

To get started, you need to be editing one of your documents. Access the calendar function by pressing *F2-0*. You'll see this line in the upper left:

```
MO/DD/YY *HH:MI : COMMENT
```

In the lower right you'll see *mycal.do*. This is name of the file that your calendar will be stored in. Don't delete it!

The format takes a little bit of explaining. The *MO/DD/YY* is pretty straightforward. European and other users that use the DD/MO/YY format are out of luck. Remember to use two digits for MO and DD, such as *06/01/92* instead of *6/1/92*. The latter throws the sort function for a loop. You'll get a *Data Error* message if you don't follow the specified format exactly.

After inserting a space or tab, put in the time of day. The asterisk isn't part of the format. Instead, substitute an *a* for A.M. or a *p* for P.M.

A space followed by a colon, followed by a space or tab, separates a comment about the scheduled event. A correctly formatted example might look like:

```
12/09/91 p05:00 : Deadline for
February P100 column
```

UNSCHEDULED EVENTS

An unscheduled event is not the same as an unexpected event. Rather, it's something that you want to accomplish on a certain day, but not at any specific time. Since you have to specify a time for

each event, I use a time notation of *a00:00* to denote an unscheduled event. For example, I don't have to file my *P100* articles at any particular time during a day, but they are due on the specified day. The entry above would look like the following in my *Calendar*:

```
12/09/91 a00:00 : Deadline
for February P100 column
```

By using midnight for the time, unscheduled events get sorted to the top of each day's events. This is a personal preference. You could use *p11:59* to sort these events to the end of each day's list.

FIRST THINGS FIRST

A calendar is best not only if it tells you what to do and when to do it, but in what order. If you are keeping track of appointments, then you want to sort your calendar by date and time.

The *Calendar* sort function works with calendars stored only in the file named *mycal.do*. But don't take this to mean that you can keep only one calendar. You might keep one calendar for business events and another for social and yet another for personal events. I haven't discussed keeping multiple calendars yet, but just keep in mind that it's possible.

To sort your calendar you have to be in the *Calendar* mode (*F2-0*, remember?). Pressing the *SORT* key (*F2-3*) sorts the entire list.

You can sort a part of your calendar by selecting the portion that you want to sort before pressing the *SORT* key. This implies that the entries that you want to sort are contiguous. I'm not sure what application this has in the context of a calendar, but if you have a bright idea please write to me.

CALENDAR FROM *FILES*

I mentioned earlier that you can access your calendar from within a document or from the *Files* menu. You can do two things from the *Files* menu. The simplest is to put the cursor over *mycal.do* and press *ENTER*. You'll now be editing your calendar as if it were an ordinary file. You can edit the contents, scroll through it, and do anything you want including add entries that are illegally formatted. Since you are not in the *Calendar* function, the *Calendar* software isn't checking to see if you are making any boo-boos. This can be a handy way of looking at your calendar if you are at the *Files* menu. But I don't recommend that you edit any data unless you are very careful. If you do this and your calendar won't sort later, you probably made a syntax error when making changes.

VIEWING YOUR CALENDAR

You can also check your *Calendar* at the *Files* menu by using the *VIEW* function. Highlight the *mycal.do* entry and press *F1-V* instead of *ENTER*. You will see the first seven lines of your calendar. A —*More*— indicator in reverse video, at the bottom, tells you that there's more to look at. Press *ENTER* to see the next seven lines. Unfortunately, this is a one-way viewer. You can scroll forward through your calendar but not backwards. At the end of the list you'll be deposited back at the *Files* menu. Or press *ESC*ape to quit before you've reached the end of your calendar.

I find it more convenient, at the *Files* menu, to press *ENTER* rather than *F1-V*. This puts me in the normal text editing mode. I can use the normal cursor control functions to scroll forward as well as backward through my appointments.

A calendar is best not only if it tells you what to do and when to do it, but in what order.

POTPOURRI

You can print your calendar as you would any other file. If you want a special header, then you can set one up in a master file, paste a copy of your calendar in it, and print it.

Keeping multiple calendars is straightforward but a bit awkward. You may want to separate your work calendar from your personal calendar. If you are active in civic or professional events you may want to keep a third calendar as well.

The *Calendar* function is coded to work on the file *mycal.do*. You can copy the contents of *mycal.do* to another file and vice versa. The file *mycal.do* essentially becomes a holding spot for the current calendar.

TIPS

Once per day perform maintenance on your calendar by deleting entries that have already happened. This way current events are always at the top of your calendar. If you're like me (I know that may not be desirable, but I'm into clichés, remember?), I have to write a fortnightly status report to my boss. Rather than *CUT*ting entries from the calendar, use the *PASTE* function to put the entries in another file. You can use this file as a reminder of what transpired during the last two weeks.

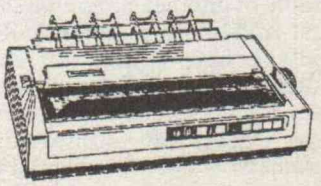
I can't take my WP-2 everywhere I go at work, so I carry one of those fat schedule/diary planners (Franklin DayPlanner if you must know). If you're in the same boat as I am, then try these suggestions: Print your calendar in the morning, transfer today's schedule to your planner, and mark up the WP-2 calendar printout during the day as your future schedule changes. At the end of the day, update the WP-2 *Calendar* and print a new schedule for tomorrow.

If you don't use a planning/scheduling system, what I used to do was keep a computerized schedule. In the morning I'd print it out on one sheet of paper and tuck it into my shirt pocket. During the day I'd update my schedule as new events and changes occurred. I'd also use the sheet to take notes. The following morning I would update my *Calendar*, print a fresh copy, and file the previous day's calendar/notes for reference.

WP-2 TIPS WANTED

For the past year I have been dispensing basic WP-2 information. If you've got some WP-2 tips that you'd like to share with your fellow readers, send them to me. I'll publish those tips that I haven't seen before and give credit to the first person who makes the suggestion.

This is your column. I want you to help define the "yellow brick road" for me to follow. Fire up your WP-2 and send me a letter in care of Portable 100 *or directly at P.O. Box 28181, Santa Ana, CA 92799-8181. If you prefer the electronic medium, use GEnie address STAN.WONG, CompuServe address 70346,1267, or Internet: wongs@wdi.com.*



The Portable 100 Classifieds

Software

FAST (tm) 3x turbo cassette LOAD/SAVE utility for Tandy M100/102, M200 (specify). See 11/89 P100 review. SASE for information. Cassette, manual $19.95 ppd. Zwillenberg, 475 Richmond, Maplewood, NJ 07040

Hardware

Model 100 32K with Super Rom $275.00 firm. Call (308)527-3506.

Model 100 32K, Multiplan ROM, DV/I, Modem, Cable, Recorder, Software, book, $450.00; C. Itoh printer $150.00. (812)853-3297.

Tandy 102 32K, Portable Disk Drive & portable Brother printer $350.00; Tandy 1100FD 640K and modem $450.00. (213)828-1997.

TRS-80 Model 100 32K, Super ROM, case, legs, adapter, seven software packages, books. Needs new LCD screen. $199.00. Peirce, 2948 Blairstone Ct., Tallahassee FL 32301.

EMM, integrated ExtRAM/RAM/PDD-1&2 file manager. Runs in ExtRAM, utilizing unoccupied space for file storage. Features aggregate file selection and file compression. Send SASE for information or $15.00 for disk. TPSIG, P.O. Box 684473, Austin TX 78768-4473.

Record voltage or other analog parameters with your 100/102/200. DATAMITE A/D converter connects to cassette jack, software provides voltage readout and/or emulates scrolling chart recorder on your Tandy screen. $66 + $4 S&H: Jones Service & Design, 1842 S. Nugent Rd., Lummi Is., WA 98262. (206)758-7258.

Data Acquisition with M100/102. REI, RR1 Box 113F, Royalton, VT 05068. (802)763-8367. 10/91

Tandy 102 w/32K, adapter, & null modem. Rarely used. $225.00 (409) 935-5637 5/91

For Sale

TRS-80 Model 100, 32K, Scripsit 100, $200. Model 102, 24K, TView 80, $200. Diskplus, $75. (617) 871-1778. 3/92

TRS-80 Model IV computer.One 5Megabyte Hard Disk Drive. One Radio Shack Printer -- Letter quality. Call (215) 279-8060. Best Offer.

M100 w/32K and Ultimate ROM II. TTXpress portable printer - $350. negotiable. Call (802) 292-9406 evenings.6/91

WP-2 ROM simulator card! Plugs into the expansion card slot of the WP-2. Holds up to four 256Kbit EPROM's or two 1Mbit EPROM's. $89.95 each. Midwest DataCard Marketing (513) 433-2511 12/90

WP-2 with 128K and WP-duet—$400. Call Tom (707) 446-6435 3/92

T100-32K with Video/Disk Interface, acoustic coupler, recorder, software. Package only $595. EC. Dominic, 215-339-5848 6/91

Wanted

Hobby contact wanted with Tandy notebook users in Paris and suburbs. Possible program exchange. Speak English, French, and Model 100 assembly language. Call 45-03-12-16 Paris phone, or write Mike Kelton, 39 Avenue Paul Doumer, 75116 Paris, France. 4/91

HOW TO PLACE A CLASSIFIED AD

Categorize your advertisement (Hardware, Software, Services, Wanted, Etc.) and carefully type your message. We are not responsible for correctly interpreting handwritten advertisements. Phone numbers, street numbers, dimensions, and any abbreviations count as one word. Logos, company or product, are not allowed, neither are display advertisements. Business rates are 90¢ per word; non-business rates (individuals advertising) are 60¢ per word. Add up the cost and send the advertisement copy with a check, money order, Visa, or Mastercard number to: Portable 100 Classifieds, 145 Grove St. Ext., P.O. Box 428, Peterborough, NH 03458-0428, c/o Linda Tieman. Make checks payable to Portable 100 Classifieds. Include your complete return address and phone number (phone number is printed only if it is included in the advertisement itself). Materials due the 1st of the month, two months prior to the magazine cover date (example: materials for the February issue must be received by December 1st.) Advertisements received after the deadline will appear in the next scheduled issue. Payment must accompany order. No refunds for advertisements that miss deadlines, regardless of reason. We reserve the right to change advertisement categories, and to reject, edit, or cancel any advertisement we deem improper. There are no agency discounts for classifieds. **For faster service call 603-924-9455.**

_____ _____ _____ _____ _____

_____ _____ _____ _____ _____

_____ _____ _____ _____ _____

_____ _____ _____ _____ _____

_____ _____ _____ _____ _____

Ad Category _____ No.of words x (90¢)(60¢) _____ #Issues to run _____

Name _____

Address _____

City _____ State _____ Zip _____

Total Enclosed x (Ad Cost x Issues) _____ Phone Number _____

Visa/Mastercard Number _____ Exp. Date _____

Signature _____

New LOW Rates!

Businesses—90¢ per word
Non-business—60¢ per word
Find those items you need, sell the ones you don't, start a business inexpensively!

Low-Profile Null Modems!

These ultra-small null modem connectors let your Model 100, 102, 200, 600 or MS-DOS computer talk directly to any other computer. So small and light you can always keep it right with your computer!

*Direct connections in **half** the space!*
Drawing is ACTUAL SIZE!

25-pin Male-to-Male, Male-to-Female, or Female-to-Female
only $20.00ea
The internal pin connections are:
1-1, 2-3, 3-2, 4-5, 5-4, 6&8-20, 20-6&8, 7-7
Portable 100—Hardware
P.O. Box 428, 145 Grove St. Ext.
Peterborough, NH 03458-0428
(603) 924-9455
Visa, MasterCard, Amex accepted.
Please allow 2-3 weeks for delivery

Circle 19 on reader service card.

ADVERTISER'S INDEX

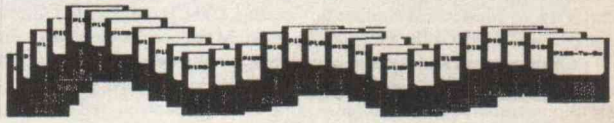
Free Information

For free information on products advertised in this issue of Portable 100, locate the Reader Service number corresponding to the advertisement that interests you. Circle the number on the Reader Service Card at page 23 (or on the protective mailing wrapper if you are a subscriber) and drop it into the mail. The literature you've requested will be forwarded to you without any obligation. Please allow 3-5 weeks for delivery.

ADVERTISERS			ADVERTISERS	
RS#		Page	RS#	Page
176	Amherst International	CII	121 Paul Globman	16
180	Automap Inc.	CIV	45 Pacific Computer Exchange	6
165	Club 100: A Model 100 User Group	1	117 Portable 100—Gender Changer	9
170	Club 100: A Model 100 User Group	6	55 Purple Computing	24
141	Computer Reset	15	49 Purple Computing	9
05	Destiny Technology	9	151 Robert Rice	24
81	EME Systems	28	20 Shreve Systems	24
83	EME Systems	34	128 Software Versand	24
85	EME Systems	37	18 System Peripheral Consultants	23
01	Infogrip	CIII	99 Solarmetrics	6
116	King Computer Services	38	71 Tri-Mike Network East-WR	40
37	MicroMime	23	73 Tri-Mike Network East-D+	19
149	MicroMime	35	75 Tri-Mike Network East-CR	32
175	Micro-Ref	17	74 Tri-Mike Network East-Lucid	39
190	Optical Data	18	72 Tri-Mike Network East-SR	5
			134 Ultrasoft Innovations	13

FINGERS TIRED?

Accomplish more... in less time. Get the P100-To-Go program disk.



Make your life easier! Save hours of time from typing in lengthy programs. Never worry again about typing errors. Have more fun with *Portable 100*'s new disk-of-the-month service. Every program from the magazine is included on each month's disk. No typing. No trouble.

We make it easy and inexpensive. You deserve value. At *Portable 100* we believe in value. That's why we're not only making each month's programs available on 100K Tandy Portable Disk Drive disks (which work in 200K drives), we're also making sure any extra room on each disk is packed with interesting and fun bonus programs. All files are in *.DO* format. Ready to load. Ready to go.

Not just for the Tandy 100. The *P100-To-Go* disks will work with any computer that uses the Tandy Portable Disk Drive, the Brother FB100, and the Purple Computing Portable Disk Drive. This means your NEC-8201/8300, Tandy 100/102, Tandy 200, Olivetti M10, and Kyotronic KC-85 can all load these programs into memory (once loaded, changes for specific computer models may be required, refer to corresponding program article for information about compatibility with particular computers).

Subscribe and save! You can order *P100-To-Go* disks individually at only $9.95, but for maximum savings sign up for our **Six-pack Special**, one disk each month

❑ **Yes!** Save me hours of typing time. Sign me up for your **Six-pack Special** (6 monthly disks of the *Portable 100* programs, plus the special bonus programs included with every disk) for only $47.70.

❑ ***P100-To-Go*** 1988 disk set (Jun.-Dec. 1988) $47.70.
❑ ***P100-To-Go*** 1989 disk set A (Jan.-Jun. 1989) $47.70.
❑ ***P100-To-Go*** 1989 disk set B (Summer '89.-Feb. 1990) $47.70.

Individual *P100-To-Go* disks at $9.95

❑ Jun '88	❑ Jan '89	❑ Sum '89	❑ Mar '90	❑ Apr '91
❑ Jul/Aug '88	❑ Feb '89	❑ Oct '89	❑ Apr '90	❑ May '91
❑ Sep '88	❑ Mar '89	❑ Nov '89	❑ May '90	❑ Jun '91
❑ Oct '88	❑ Apr '89	❑ Dec '89	❑ Nov. '90	❑ Jul/Aug '91
❑ Nov '88	❑ May '89	❑ Jan '90	❑ Dec. '90	❑ Sep '91
❑ Dec '88	❑ Jun '89	❑ Feb '90	❑ Mar. '91	❑ Oct '91

To place your order immediately, call:
603-924-9455

Prices include postage and handling. Please allow 4-6 weeks for delivery. Foreign airmail add $2 per disk. All foreign, US Funds drawn on US banks only.

❑ Payment enclosed (check or money order)
❑ MasterCard ❑ VISA ❑ Amex

CARD NUMBER _____ EXP. DATE _____
SIGNATURE _____
NAME _____
STREET ADDRESS _____
CITY _____ STATE _____ ZIP _____

Mail to: Portable 100, P100-To-Go,
P.O. Box 428, Peterborough, NH 03458-0428

The incredible **Infogrip**

BAT

A completely new way of entering data into a computer

You enter letters, characters and symbols by pressing a combination of keys much like playing a chord on a piano. Your eyes remain on the screen, not the keyboard.

The **BAT** *lets you create a library of words, phrases, and macros that you enter with a single chordic keystroke.*

Priced at Only

$495

Features

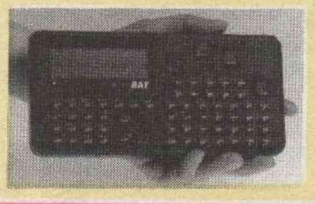
- **Scientifically designed for easy learning and retention.**
- **Two 7-key keyboards, one for each hand.**
- **Each keyboard has all the functions of a standard 101-key keyboard.**
- **Keyboard is angled and wrists are supported for maximum comfort and health.**
- **Characters are entered by pressing combinations of keys much like playing the chords on a piano.**
- **User can assign chords to words, phrases and macros.**

Advantages

- **Quick and easy to learn.**
- **User does not have to look down at the keys and can keep eyes on screen.**
- **Ergonomic design minimizes strain, fatigue.**
- **Keyboard is angled and wrists are supported for maximum comfort and health.**
- **Users can use one or both hands to enter data (ideal for CAD users...one hand on the mouse, one hand on the BAT).**
- **User can enter words, phrases, macros with a single chord.**
- **Does not interfere with standard touch-typing skills**

Infogrip Information

Infogrip Inc.
5800 Perkins Place 5-F
Baton Rogue, La 70802
(504) 766-8082 (voice)
(504) 336-0033 (Fax)



Also available:
The Mini BAT
$595

"Incredibly easy to learn. I was typing, quickly and accurately, in less than an hour!"
Says Terry Kepner, *PORTABLE 100* magazine

Circle 01 on reader service card.

Explore Outer Space The Human Race and Every Place.

ORBITS
Voyage Through the Solar System™

Journey beyond the sky to the rings of Saturn, the mountains of the moon and the core of the sun with ORBITS—Voyage Through the Solar System. Combining colorful animation, 3-D graphics and

actual satellite photographs, ORBITS is an interactive space simulator, atlas of the solar system and scientific adventure.

$59.95

BODYWORKS
An Adventure in Anatomy™

Explore the universe of inner space with BODYWORKS—An Adventure in Anatomy. Comprehensive, full-color computer graphics lead you on a fantastic voyage into the systems, structures and functions of

the human body. By accessing a vast database, you can focus on different internal systems.

$79.95

AUTOMAP™
The Intelligent Road Atlas™

The fun, fast, friendly way to know before you go. Full-color maps help you plan your best route. Accurate, current and reliable data. Print out detailed maps and directions to take along with you.

AUTOMAP can easily save up to 20% in driving time and costs.

$99.95

SOFTWARE MARKETING CORPORATION

To Order Call

1-800-545-6626

or FAX (602) 893-2042

9831 S. 51st St. Building C-113 Phoenix, AZ 85044

AUTOMAP™ INCORPORATED

Orbits System Requirements: IBM PC or compatible, 512K memory, MS-DOS 2.0 or above, EGA or VGA color graphics. 5.25" or 3.5" disk drive.
(Optional) Microsoft Mouse or compatible.

Bodyworks System Requirements: IBM PC or compatible, 512K memory, MS-DOS 2.2 or above. Hard disk drive (uses 25MB). VGA or EGA displays. 5.25" or 3.5" disk drive.
(Optional) Microsoft Mouse or compatible.

AUTOMAP System Requirements: IBM PC or compatible, 512K memory, MS-DOS 2.2 or above. Hard disk drive (uses 4MB). Super VGA, VGA, EGA, CGA, or Hercules. 5.25" or 3.5" disk drive.
(Optional) Microsoft Mouse or compatible.
Printers: From Dot Matrix to PostScript, from Black Ribbon to 16 Color, 9 Pin to Laser.

Circle 180 on reader service card.